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ON THE ALKALOIDS AND ACIDS OF *SANGUINARIA CANADENSIS.*

BY LEWIS C. HOPP, PH. G.

From the Author's Inaugural Essay.

In preparing the alkaloids, the powdered root was exhausted with alcohol by precolation, and the resulting tincture evaporated by means of a water-bath to the consistency of a thin extract; this was digested with sufficient hydrochloric acid for three days, and then poured into water with constant stirring until it was thoroughly diffused, then permitted to stand for twenty-four hours, to allow the resin to settle to the bottom. It was then filtered and the filtrate evaporated to half its bulk, ammonia water was added, and the purplish-brown precipitate collected on a filter and washed well with water, dried and repeatedly agitated with ether until completely exhausted. The sanguinarina sulphate was obtained by adding a mixture of sulphuric acid and ether to the ethereal solution; this crystalline crimson precipitate was then purified by recrystallizing from a hot alcoholic solution.

Iodohydrargyrate of potassium produced, in its solution, a bright red, and ammonia a white precipitate.

The supposed puccina was obtained according to Mr. Wayne's process. The ethereal solution, from which the sanguinarina sulphate had been separated, was of a light straw color; the ether was slowly distilled off nearly to dryness, and a residue of a reddish-brown color remained in the retort, dissolving in alcohol with a red color. Hydrochloric acid was added in very slight excess and the solution set aside to evaporate spontaneously; the first crop of crystals was of a granular form, similar to sanguinarina sulphate, and of a light reddish-brown color; the second crop was of a darker color. Iodohydrargyrate of potassium produced a precipitate of a yellowish-red color, and ammonia one of a purplish-brown, this last furnishing a purple solution with chloroform.

Supposing that it still contained sanguinarina, it was dissolved in water

acidulated with HCl, ammonia added, the precipitate washed with water, dried and agitated with ether. On passing hydrochloric acid gas through this solution, hydrochlorate of sanguinarina was precipitated, of a crimson color. The portion that was not taken up by the ether was found to consist of resin and coloring matter, which substance it is that gave a purplish color to the ammonia precipitate and to its solution in chloroform. Puccina is nothing more than sanguinarina, with some resin and coloring matter persistently adhering to it.

The resinous substance obtained by the precipitation of the concentrated tincture in water was treated with alcohol, the solution acidulated with hydrochloric acid and poured into a large quantity of water with constant stirring; after twenty-four hours the liquid portion was filtered and evaporated to half its bulk and set aside to crystallize, when a substance similar to the supposed puccina, but of a lighter color, was deposited. It was dissolved in acidulated water, precipitated by ammonia of a purplish-brown color, collected on a filter, washed with water, then dried and agitated with ether, which did not take it up entirely. Hydrochloric acid gas was passed through it, and the sanguinarina was thrown out of solution; the portion that was not taken up by the ether consisted of resin and coloring matter.

Supposing that the resin that was precipitated from the above acidulated alcoholic solution by pouring it into water was not entirely free from sanguinarina, it was treated with acidulated water, precipitated by ammonia and treated with ether, and HCl gas passed into it; the same result was obtained as with the supposed puccina. The residue, insoluble in acidulated water, was dissolved in alcohol, ammonia added in slight excess, and then three times its bulk of ether was added to it; the alkaloid taken up by the ether proved to be sanguinarina, while the resin remained behind of a brownish appearance, tasteless and inodorous.

The residue left, after exhausting the first ammonia precipitate with ether, was treated with dilute acetic acid, and the solution evaporated by means of a sand-bath to the consistence of a soft extract. This was then repeatedly boiled in water acidulated with HCl, and the solution treated, as described above, with ammonia, ether and hydrochloric acid gas, when the sanguinarina salt was obtained. The portion insoluble in the acidulated water was of a yellowish-brown color. A mixture made of it with some sanguinarina and resin was boiled in acidulated water, and on the addition of iodohydrargyrate of potassium a precipitate of a yellowish-red color was produced; while ammonia yielded a purplish-brown precipitate, which dissolved with a purplish color in

chloroform—these reactions being exactly the same as those produced with the supposed puccin.

Sanguinarinic acid was obtained according to Newbold's process ("Amer. Journ. Pharm.," 1866, p. 496). To the clear solution from which the sanguinarina had been precipitated by ammonia, acetate of lead was added, and a precipitate of a greyish-white color obtained, which was collected on a filter, well washed, suspended in water, and decomposed by sulphuretted hydrogen gas. The filtrate was evaporated to the consistence of a syrup, but no crystals were formed on standing. It was of a dark reddish-brown color, turned blue litmus paper red, and had a sour, rather pleasant taste. Dissolved in water and lime-water added to it, no precipitate was produced, until heated to boiling. This precipitate, after washing, was suspended in water and acidulated with acetic acid. Oxalic acid, carefully added, precipitated the calcium, and, after treatment with alcohol, citric acid remained in solution, which, with chloride of calcium, produced a precipitate soluble in ammonium chloride, and was reproduced on heating.

Alcohol was added to the clear solution from which the citrate of calcium had been precipitated, and a dense flocculent precipitate was produced, which was dissolved in water, a little acetic acid added, and the calcium precipitated by oxalic acid and alcohol. The filtrate behaved like a solution of malic acid. Acetate of lead produced a white precipitate, which, on being heated with water, fused, but dissolved in warm acetic acid. Lime-water produced a precipitate only after the addition of alcohol.

A sample of so-called sanguinarinic acid, prepared by Mr. Newbold, was obtained from the College cabinet; it had a slight acrid taste, and iodohydrargyrate of potassium produced in its solution a precipitate, showing the presence of some sanguinarina, while that obtained by me was not affected. To lime-water Newbold's acid behaved precisely as described above.

These investigations prove the non-existence of puccina, and that the supposed sanguinarinic acid is a mixture of citric and malic acids.

SAPONIN IN THE ROOT BARK OF *CHIONANTHUS VIRGINICA*, LIN.

BY RICHARD S. JUSTICE, PH. G.

Extracted from an Inaugural Essay.

The root-bark of the fringe-tree is medicinally employed by eclectic physicians. In operating upon it, the author was led to infer the pres-

sence of saponin, which was obtained pure or nearly so in the following manner:

One pound (7,000 grs.) of the powdered bark was carefully packed in a percolator, and exhausted with strong alcohol, the percolate was a clear reddish-brown liquid, having a bitter taste and odor of the bark, and yielding, on evaporation, 1,750 grains or 25 per cent. of extract, which has an extremely bitter taste, is perfectly soluble in alcohol and water, partially soluble in ether, and insoluble in chloroform.

From this extract, saponin was prepared, according to Rochleder's process, by dissolving 240 grains of it in water, and adding to the solution baryta water till no further precipitation occurred. The precipitate was collected on a filter, washed thoroughly with baryta water, and redissolved in water. Through the filtered solution, carbonic acid gas was passed till the baryta was entirely precipitated, and the clear filtrate was then evaporated, spread on glass and dried at low temperature. The result of the experiment was a straw-colored powder, perfectly soluble in water, the solution producing froth when shaken.

This saponin was not changed in color by sulphuric acid; nitric acid colored it reddish-brown, caustic potassa red and ferric chloride greenish. It deserves further investigation; likewise the bitter principle contained in the bark.

"POKE-ROOT" (*PHYTOLACCA DECANDRA*)—POISONOUS EFFECTS FROM INHALATION OF THE POWDER.

BY CHARLES H. CRESSLER, CHAMBERSBURG, PA.

On the evening of January 28th, a package of poke-root, gathered early in November last, properly sliced and dried, and weighing seventy-eight troy ounces was opened, and seventy-two ounces set aside to be prepared for percolation in the morning, six ounces coarsely ground and put in store drawer. A clerk and myself, who handled the drug, experienced some slight dryness of the throat during the night. In our next morning salutations we recognized, that each had, as we supposed, a cold, our voices being quite husky. At about half-past eight o'clock the porter proceeded to prepare the root for percolation, and in about two hours it was, by means of an Enterprise drug mill and a tin cased sieve, prepared, moistened and packed in a percolator. By this time we experienced something like an endemic coryza, which we attributed to the dust of the poke root. The floor was sprinkled and all dust carefully removed with damp towels. Three clerks, porter and myself seemed affected to a greater or less extent, and coughed violently. There

was a decided indisposition at one P. M., on the part of all concerned, to eat dinner, and there was continued coughing, with soreness of chest, and eyes were much inflamed. At seven P. M. four of the parties were unable to eat supper, and one of them went to bed very sick, with eyes much swollen, pain throughout the body, and chill, followed by high fever. At ten P. M., free vomiting was induced, somewhat to the relief of the patient, but entire recovery did not ensue for forty-eight hours.

No. 2 was very ill at nine P. M., with both vomiting and purging, eyes much irritated, and patient very restless during night and until noon of following day. During convalescence of forty-eight hours, purging continued to a considerable extent, after which the patient recovered.

A child of the writer, six years of age, who happened in the store for not over five minutes, at the time the drug was being prepared, was seized with a cough in the latter part of the day, which lasted into the night, and much resembled croup. This we attributed, as in the other cases, to the effects of the drug. A marked feature in all the cases was a very decided soreness of all the motor muscles of the body.

Feeling fully convinced that, if I had had in process of preparation, double the quantity of the drug, serious, if not fatal consequences would have resulted, and having sadly experienced the want of precautionary advice in the "United States Dispensatory," I deem it my duty to offer this statement for your consideration, whether it is not well enough to have recorded in our journals such precautions as are essential to the safe handling of such drugs, as are so slow to exert poisonous effects, and hence the more dangerous.

WHAT IS "ANGELICA-ROOT?"

BY ADOLPH W. MILLER, M. D., PH. D.

(*Read at the Pharmaceutical Meeting, April 20th.*)

When a pharmacist orders "angelica-root," what does he expect to receive? As the answers to this query showed the existence of a wide difference of opinion among botanical druggists and others, an inquiry into the subject may possibly be productive of greater uniformity. The attention of the writer was first directed to the matter in a rather mortifying manner by a compounder of liquors, who had inadvertently obtained, along with a number of other ingredients, a pound of ground American angelica-root, in place of the European, which he had been in the habit of using. According to the statement of this party, a

whole barrel of his bitters had been totally spoiled by it, so that it was rejected by all of his customers, on account of its peculiar and, to them, disagreeable flavor. The root in question had been obtained in the ground state from a New York drug mill, and, on being applied to, the proprietors insisted that there was no error whatever on their part, but that the correct article had been sent.

The "Pharmacopœia Germanica" gives *Archangelica officinalis*, Hoffmann, as the plant furnishing the officinal *Radix Angelicæ*. In the old editions of the "U. S. Pharmacopœia," our indigenous species *Angelica atropurpurea* (or *Archangelica atropurpurea*, Hoffm.) was recognized in the secondary list. The edition of 1860 dismissed the species, and substituted the European *Angelica Archangelica*, now named *Archangelica officinalis* by Hoffmann. The present edition has rejected both plants, so that we cannot appeal to its authority on this point.

The search for an authentic specimen of American angelica-root revealed the somewhat surprising fact, that at least three or four different roots are sold under that name. One of our Southern friends, who kindly favored us with the pressed leaves, as well as the root of what he considered the true *Archangelica atropurpurea*, informed us at the same time that he has reason to believe the root of *Ligusticum actæifolium* to be sometimes substituted. The leaves and umbellets of his own specimen, however, vary materially from those of *Archangelica atropurpurea*, while they agree with the botanical description of the *Ligusticum actæifolium*. The flavor and odor of his roots, also, very closely approach those of the European lovage, *Ligusticum levisticum*. One of the popular synonyms for this American lovage is Angelico, certainly a very near approach to angelica; and this may, in part, account for the error. According to Gray, the *Archangelica atropurpurea* is not even met with south of Pennsylvania.

Another variety of the commercial angelica-root, obtained from a very respectable source, bears a close resemblance to the American spikenard, *Aralia racemosa*. It is most probably the root of the *Aralia spinosa*, which is known in many sections as the angelica-tree.

The popular name of masterwort is an additional cause of confusion. The "U. S. Dispensatory" applies this word to three different plants: *Angelica atropurpurea*, *Heracleum lanatum* and *Imperatoria ostruthium*. As only the latter of these is of European origin, there can be little doubt that it is the proper root to dispense, when called for by Germans under the name of *Meister wurzel*. Regarding the two former,

one of our botanical establishments admitted occasionally sending out either one indiscriminately, though the name masterwort is more generally understood to apply only to the *Heracleum* or cow-parsnip.

The frequent substitution of these roots for each other is no doubt to be partially attributed to the fact, that they all agree in being highly aromatic, and in possessing a warm, pungent taste. All of them are members of two very closely related families, the *Umbelliferæ* and the *Araliaceæ*. There is, however, so striking a difference in the physicial properties of these commercial angelicas and the true cultivated *Archangelica officinalis*, that the recognition of the latter presents no difficulties. Its odor and taste are quite peculiar, and altogether different from those of any of the substitutes; its color is also rather darker and more brownish. The most marked characteristic is the great abundance of very numerous, descending, wrinkled fibres, many of them several inches in length. In this respect it differs entirely from the American specimens, all of which are simple roots, not furnished with radicles.

To revert to the original question: Which is the proper root to dispense, in the absence of specific directions? Most of the trade catalogues of our botanical druggists and fluid-extract manufacturers describe angelica as being obtained from *Angelica atropurpurea*. It has been shown, that, owing to the lack of botanical knowledge on the part of the collectors, and, perhaps, also to other causes, those who purchase this are quite as likely to receive some substitute as the true root; while the cultivated species can be readily obtained free from adulterations. When *Engelwurzel* and *angélique*, or *racine de Saint Esprit* are asked for, the European or garden angelica is evidently wanted. When used as a flavoring ingredient for liquors or cordials, it is equally certain that the peculiar flavor of the *Archangelica officinalis* is desired, as most of the recipes for bitters and gins, in which it is used, have originated in Europe. As has been already stated, *Archangelica officinalis* is the only species recognized in the "German Pharmacopœia," and the same root was officinal with us during the previous decade. Angelica is in reality used to a much greater extent by our foreign than by our native-born population. The consumers are almost invariably unaware that there is more than one variety, and they consequently ask simply for angelica, as the English name is given by their respective dictionaries. In consideration of these facts, it is, in the opinion of the writer, by far the safest to give the imported species,

whenever there is any doubt. In order to avoid occasional annoying errors, pharmacists may find it advantageous, in ordering, to indicate definitely which variety they desire, and to label their packages accordingly. If the full botanical names are found to be too unwieldly for daily use, the two drugs may be neatly and conveniently distinguished by the adjectives, European and American.

Philadelphia, April 19th, 1875.

WINE OF TAR.

BY J. B. MOORE.

(*Read at the Pharmaceutical Meeting, April 20th.*)

The formula usually employed by pharmacists in making wine of tar is that recommended by the late Prof. Procter ("U. S. Dispensatory," edition 1870, page 680), which, as is well known to all, is a very troublesome and rather complicated process, while it affords a very unreliable product, being feeble in tar strength and very unsightly in appearance.

The copious mucilaginous deposit which takes place in the preparation on standing, when made by that process, appears to carry with it almost all the virtues of the tar which it may have contained when freshly made, and leaves the supernatant liquid of little more than the strength of ordinary tar-water. This process of depletion seems to continue almost indefinitely.

Now, as the wine of tar still sustains its popularity with the medical profession, which renders it necessary for almost every pharmacist to keep it in stock, it is important that there should be a good and easy-working formula for its preparation, devoid of the faults just alluded to as adhering to the one commonly employed, so that every pharmacist may make it, of reliable quality, for himself. Besides, owing to the trouble attending its manufacture by the old formula, there are, as far as I can learn, but very few retail pharmacists who make it for themselves; they rely almost exclusively upon the wholesale manufacturers for their supply, and of course are liable to get a very indifferent article. For these reasons, I have been led, by experiment, to adopt an entirely new process for making this preparation, a process which obviates the objections attached to the old method, being much less troublesome, while it affords a more efficient and satisfactory preparation in every respect. The formula is as follows:

℞.—Tar, pure, ... ℥xvi, troy.
Glycerin, ... }
Sherry Wine, ... }
Honey, ... āā f℥viii.
Acetic Acid, ... f℥i.
Boiling Water, ... O vi.

Mix the glycerin, sherry wine, honey, acetic acid and boiling water together, in a stone jug or other suitable vessel of the capacity of a gallon. To the mixture add the tar, and shake the whole vigorously for several minutes. The vessel is then to be tightly stopped and placed upon a stove or in a water-bath, resting upon folds of paper, and the mixture digested, for an hour or two, at a temperature of from 150° to 160°. During the digestion, the mixture should be frequently well shaken. When the digestion is completed, the mixture is to be set aside to macerate, in a warm place, for a few days, it being well shaken occasionally during the process. Lastly, strain through muslin, and filter the strained liquid through paper.

I here present two samples of the wine of tar; that marked No. 1 being made in exact accordance with the above formula, and the other, marked No. 2, made by the same formula, omitting the acetic acid. They have both been made for some time: No. 1 since the middle of last October, No. 2 since the 1st of last January.

These samples have been recently filtered, and are, as will be observed, beautifully bright and transparent. Both were of a lighter color when freshly made, but have gradually become darker by age. This change seems to have been much greater in the sample containing acetic acid, which, in fact, when first made, was darker and seemed to be much stronger in the sensible properties of tar than the other.

The addition of the acetic acid to the formula I consider a decided advantage, as it not only increases the solvent power of the menstruum, but also imparts to the preparation the well-known and valuable refrigerant properties of vinegar. The proportion of the acetic acid, I think, might even, with advantage, be increased. The slight acescency given to the wine by the acetic acid improves its taste.

I can see no possible advantage that can be derived from the fermentation process employed in the old formula, as it cannot confer any special therapeutic value upon the preparation, while it renders its manufacture very tedious and troublesome.

Wine of tar, at best, can only be valued, therapeutically, for its tarry

properties. Any other incidental virtues which it may be imagined to contain must be simply negative.

Like all similar preparations of tar, the wine of tar, as above prepared, deposits on standing more or less inert oxidized resinous matter, and requires to be filtered occasionally, which restores it to the appearance presented by the samples.

Philadelphia, Pa., April, 1875.

LIQUOR POTASSII CITRATIS.

BY AUG. HOHL, PH. G.

(*Read at the Pharmaceutical Meeting, April 20th.*)

The great trouble with this preparation, so much used in medicine, is to keep it fresh and clear. Having tried various formulas, old and new, and finding that the solution will always turn turbid and flocculent in a short time, I offer the following, which is not liable to this objection:

1. ℞. Citric acid, . . . ℥i	2. ℞. Bicarbonate of potassium, . ʒxi
Distilled water . . fʒviii	Distilled water, . . fʒviii
Dissolve and filter.	Dissolve and filter.

Two solutions are thus obtained ready for use; and when liq. potass. citr. is ordered, all that is necessary is to mix equal parts of the two, allow it to effervesce, and the preparation, fresh and clear as crystal, is ready for use.

The above quantities are double those of the "U. S. Pharmacopœia."

SUPPOSITORIES.

BY A. M. KNOWLSON, TROY, N. Y.

I have read with interest the articles of Messrs. Kennedy and Kemble on suppositories, in the "Amer. Journ. Pharm." for the months of February and March, respectively, and would crave a small space in your valuable Journal to say a word on the same subject; *audi alteram partem.* Each of the articles referred to strongly objects to the moulding of suppositories by a machine; and one rather pointedly intimates that the great end in view of the pharmacist who prepares them, is simply to turn off a great quantity of elegant preparations, and at a large profit to the manufacturer, without any regard to the poor sufferer who is to use them.

Now, while this statement *may* be true, the writer is not inclined to hold so low an estimate of his fellow-craftsmen; may he suggest that perhaps one reason for the dislike evinced by those gentlemen to the use of a machine, is simply because they have tried none but the old-fashioned one (which truly is open to the objections stated).

For some years past I have used a mould of my own invention, which is not liable to the same objections as the one above referred to. My suppositories are moulded by the cold process (which I deem preferable to that of melting), thus securing a more equal distribution of the medicinal ingredients; and, being shaped by the machine, are always equal in weight and of uniform shape. Mr. Mattison, in his article (March, 1875), has fully explained the *modus operandi*, in reference to the manufacture of the suppositories, save that I differ with him in preferring to use the cacao butter without melting.

Should any pharmacist or physician desire more particular information in regard to or description of my mould for vaginal, intra uterine and rectum suppositories, I should be happy to furnish it.

CINCHO-QUININE.

BOSTON, April 15th, 1875.

Editor American Journal of Pharmacy:

DEAR SIR,—Our attention having been called to a communication by Messrs. E. Scheffer and C. L. Diehl, in the April number of the "American Journal of Pharmacy," purporting to be a chemical examination of cincho-quinine, we desire to remark briefly as follows:

The agent was introduced to the profession in 1869, since which no change whatever has been made in its composition. During this period it has been examined by four pharmacists: 1st, by Mr. W. T. Wenzell, of San Francisco, in 1870; 2d, by A. E. Ebert, of Chicago, in 1874; and lastly, by Messrs. E. Scheffer and C. L. Diehl, of Louisville.

The result of Mr. Wenzell's analysis was the discovery of two substances or principles which the agent did not contain, and he failed to discover quinia, quinidia or cinchonidia. Mr. Ebert was able to discover only cinchonia, failing utterly to find quinia, quinidia or cinchonidia. Messrs. Scheffer and Diehl find quinia, quinidia and cinchonia; and they remark (page 159) that, "if it contains cinchonidia, it can be present only in small quantities, and they did not search for it."

The widely different conclusions reached in the qualitative examinations made by these gentlemen must lead the reader to conclude with us, that, when an agent is made up of such complex and delicate organic principles as are found in barks, and the tests and reactions involve deceptive color-tints or forms of crystals with such varying solubility, and when these tests are so frequently fallacious and unreliable, the pharmacist and the chemist should be careful in expressing positive opinion respecting the results of their investigations when they differ from the state-

ments of the manufacturer, who certainly has the most reliable knowledge upon the subject.

As manufacturers of the article, we unhesitatingly say, that never has a phial of the agent left our laboratory constituted in correspondence with the quantitative results reached by the Louisville gentlemen, and, in saying this, we distinctly disclaim any purpose of charging them with intentional false statements.

In our circulars we have stated cincho-quinine to be the bark alkaloids quinia, cinchonia, quinidia, cinchonidia, and other alkaloidal principles present in Peruvian barks, and it contains no substances but those naturally existing in bark. By this, we wish to be understood as stating that cincho-quinine is a new method of presenting the bark alkaloids, and is unlike any other product which may be substituted by physicians for sulphate of quinine.

In conlusion, we are convinced that no more certain proof of the remedial value of cincho-quinine could be given than its growing popularity with the medical profession, and the attention given to it by the pharmacists of the country; and while their published analyses, both qualitative and quantitative, differ widely from each other, *and all are incorrect*, it is yet a source of satisfaction to us that the more exhaustive their labors, the more nearly do they approach to our statements regarding its nature and value. BILLINGS, CLAPP & CO.

EDITORIAL REMARKS ON THE ABOVE COMMUNICATION.

The drift of this communication appears to be to throw doubt upon the correctness of the results obtained by Professors Scheffer and Diehl, for no other reason than that *the tests and reactions* (of such complex and delicate organic principles) *involve deceptive color-tints or forms of crystals with such varying solubility*. Referring to the analysis, as published in the April number,* it will be observed that the color reactions of the cinchona alkaloids have not been used for their *quantitative determination*. The objection as to the varying solubility is, therefore, the only one, *a priori*, admissible in this case. Scheffer and Diehl treated the recently obtained precipitates from 2 grams each of three samples of cincho-quinine with 1½ fluidounce of stronger ether, spec. grav. ·728, consequently weighing 497 grains = 32 grams. The amount of alkaloids taken up by the ether is regarded as representing the alkaloids quinia, quinidia and cinchonidia, all of which are soluble in from 20 to 80 parts by weight of ether. In no case was the residue larger than ·100 grams, while the above amount of ether is capable to dissolve ·400 grams of the *least soluble* of the three alkaloids (cinchonidia). It was therefore employed in more than sufficient quantity to dissolve *all* of the three alkaloids present in the 2 grams of cincho-quinine.

* The reader will please correct, on page 157, line 16 from top, the words: "had it *contained* of B alone" to had it *consisted* of B alone; on page 158, line 1, the word "*cinchonia*" should be *conchinin*.

The solubility of the alkaloid cinchonia in ether is given by modern authorities as 1 in about 400; some older authorities give 600, and one, Bussy and Guibourt, even 830 parts of ether. Calculating upon the latter figure (without admitting its correctness), the 32 grams of ether employed in each case would have dissolved ·038 grams of cinchonia, which should be deducted from the, in ether, soluble alkaloids; the remaining weight would represent the correct total amount of quinia, quinidia and cinchonidia. 0·038 is equal to 1·9 per cent. of 2 grams; the correct percentage of the three alkaloids named, would, according to this calculation, be, for sample No. 1, = 3·00; for No. 3, = 2·15, and for No. 4, = 3·10 per cent. In examining sample No. 2, four fluidounces of ether were used, which are capable to dissolve ·089 grams of cinchonia, and, if calculated for the total amount of precipitate and the 5 grams of cincho-quinine, the actual percentage of the three alkaloids named above would be reduced to 3·25. These corrected figures agree with the amount of alkaloids soluble in ether determined by Mr. Wenzell in 1870, which is 2·5 per cent. Wenzell does not give the amount of ether employed by him, and we are, therefore, left to infer from the above that he may have used a much smaller quantity. Although he failed to recognize the three alkaloids, his results may be taken to corroborate those of Scheffer and Diehl. Mr. Ebert has not published the process by which he examined cincho-quinine; his results cannot therefore be compared with the quantitative analyses referred to above.

While we readily grant that the solubility of the cinchona alkaloids in ether is influenced by various circumstances, the investigations of Pasteur, Van Heijningen, De Vrij, O. Hesse, J. E. Howard and others, prove that Scheffer and Diehl have used a much larger quantity of this solvent than was actually necessary in this case, and, as applied, these tests cannot therefere be regarded as *fallacious* and *unreliable*, or the quantitative determinations to be *incorrect*, except in so far as *they have credited the samples of cincho-quinine with a larger percentage of the three alkaloids than is actually contained therein*; and this is the only light in which we can view the assertion of the manufacturers, that they have never sent out this article constituted as determined by Scheffer and Diehl. If, however, the words "fallacious and unreliable" are intended to convey the idea that a larger proportion of the salts of the three alkaloids is used in the *manufacture* of cincho-quinine, we can reconcile this fact very well with the analytical results of the commercial

article, and more particularly with the evident variation of its composition. The considerable amount of sulphuric acid, 4·8 per cent., determined in one sample, makes it evident that the article is made by mixing the sulphates of the cinchona alkaloids in a certain proportion, decomposing them with ammonia and either expressing or washing the precipitate with water to remove the mother liquor. The most valuable cinchona alkaloids being somewhat soluble in water, and much more freely in ammonia, it is very evident that, with slight variations in the strength of the ammonia or in the temperature of the water, the amount of these alkaloids left in the precipitate must vary. And since the washing is evidently cautiously performed (cincho-quinine still contains a little ammonium sulphate), it seems even probable that different portions of the same lot may vary in composition, the outer layers where the water evaporates necessarily containing a somewhat larger amount of quinia and quinidia.

Regarding the remedial value of cincho-quinine, we do not know that that has been questioned; but the possibility of its being equal to quinia in therapeutical effects has been denied, and, from its composition, it is evident that its apparent cheapness, as compared with the price of quinia only, becomes the reverse as compared with the price of cinchonia. The medical commission appointed by the Madras Government, in 1866, to test the relative value of the cinchona alkaloids, treated 2,472 cases of paroxysmal malarious fevers, and reported the number of failures for every 1000 cases treated with quinidia to be 6; with quinia, 7; with cinchonidia, 10, and with cinchonia, 23. On the other hand, however, they reported the remedial value in doses of the same weight to be as follows: 3 doses of quinia to be equal in effect to 5 doses of quinidia, to 7 doses of cinchonidia and to 7 doses of cinchonia. We have not been able to find the record of any experiments made with the mixed alkaloids, and while it is possible, it may be regarded as improbable, that the combination of cinchonia with the more valuable alkaloids should increase its efficacy to a greater extent than must be ascribed to the latter.

From these considerations, we are forced to the conclusion that cincho-quinine is an arbitrary mixture of the four cinchona alkaloids, and that its therapeutical value is fully represented by mixing an equivalent weight of sulphate of cinchonia with about 2 per cent. each of the sulphates of quinia, quinidia and cinchonidia. If, now, through this controversy, the attention of the medical profession shall have been

directed more prominently than heretofore to the value of the cheaper cinchona alkaloids, we shall acknowledge with pleasure that a real benefit has been conferred thereby upon those who need those alkaloids either as tonics or antiperiodics.

GLEANINGS FROM THE EUROPEAN JOURNALS.

BY THE EDITOR.

Gentisin (*gentisic acid*) was discovered by Henry and Caventou in gentian root. Hlasiwetz and Habermann have examined this compound, which was prepared by H. Tromsdorff according to Baumert's process. Its formula was found by Baumert to be $C_{14}H_{10}O_5$, and this result is corroborated by the authors, who obtained crystallized compounds having the formula $C_{14}H_9KO_5+H_2O$ and $C_{14}H_9NaO_5+2H_2O$, by heating gentisin with strong alcohol to boiling and dropping in the caustic alkali until completely dissolved, when the salts will crystallize on cooling or on the addition of ether.

By fusing gentisin with five times its weight of caustic potassa, until the aqueous solution of the mass is not rendered turbid on the addition of an acid, a decomposition has been effected as follows:

$$\underbrace{2C_{14}H_{10}O_5}_{\text{Gentisin.}} + O_2 + 4H_2O = \underbrace{2C_6H_6O_3}_{\text{Phloroglucin.}} + \underbrace{2C_7H_6O_4}_{\text{Gentisinic acid.}} + \underbrace{C_2H_4O_2}_{\text{Acetic acid.}}$$

The mass is dissolved in water, rapidly supersaturated with sulphuric acid and agitated with ether. From the etherial solution, the ether is recovered by distillation, the acetic acid is removed by distillation with water, and the residue in the retort neutralized with carbonate of barium; ether now dissolves out the phloroglucin. The remaining solution is decomposed by sulphuric acid, and the gentisinic acid dissolved by ether. This acid fuses at 197° C., has a faintly acid and astringent taste and is soluble in cold and hot water, in alcohol and ether, but insoluble in benzol. Its aqueous solution acquires, with ferric chloride, a beautiful deep blue color, turning to dirty red with a little soda; the aqueous solution rendered alkaline turns on exposure to the air to a fire-red, afterwards brown color. It is isomeric, but not identical with protocatechuic, dioxybenzoic, oxysalicylic and hypogallic acids. On dry distillation it yields carbonic and pyrogentisinic acids, the latter having the formula $C_6H_6O_2$ and being isomeric with hydrokinon, pyrocatechin and resorcin; it has a sweetish taste, fuses at 169° C., and reduces silver nitrate, on

boiling, with the formation of kinon.—*Annal. d. Chemie*, Vol. 175, pp. 62-75.

On the Nature and Constitution of Tannic Acid.—Hugo Schiff reviews the older analyses of the salts of this acid, and shows that they agree with the modern views of its composition, according to which it is an etherial anhydrid of gallic acid, expressed by the empirical formula $C_{14}H_{10}O_9$, first proposed by Mulder twenty-six years ago.—*Ibid.*, pp. 165-178.

Pure Chloroform, entirely free from alcohol, has, according to Rump and Biltz, a specific gravity of 1.052, and boils at 62° C.—*Archiv d. Pharmacie*, Dec., 1874, Vol. 205, p. 504.

Adulteration of Saffron.—Jul. Müller reports having met with saffron adulterated with 25 per cent. of carbonate of calcium, and lately with 9 per cent. of sulphate of barium.—*Ibid.*, p. 517.

Test for Codeia.—R. Calmberg observed that powdered codeia, treated with concentrated sulphuric acid, acquires a rose-red color, changing in a few days to violet, or more rapidly on the addition of a piece of ferric chloride; if solution of ferric chloride is used, an olive-green color is obtained, changing to violet after a few hours; in both cases a bluish precipitate is formed after some time, while the supernatant liquid remains violet.—*Ibid.*, Jan., 1875, Vol. 206, p. 25.

The Resins of Agaric.—E. Masing exhausted agaric by boiling with distilled water, afterwards by boiling with 95 per cent. alcohol; on cooling, the latter separated globular yellowish-white crystalline masses, which is partly soluble in chloroform. The portion insoluble in chloroform is a white crystalline powder, inodorous and tasteless, and fusing at 125° C.; its formula appears to be $C_{41}H_{77}O_8$. The portion soluble in chloroform was obtained as a yellowish, faintly bitter and somewhat crystalline mass, of the composition $C_6H_{10}O_1$ and fusing at about 90° C.

The cold alcohol solution left, on evaporation, a brownish-red resin, of an intensely and persistently bitter taste, readily soluble in chloroform, acetic acid, benzol and amylic alcohol. The alcoholic solution, repeatedly precipitated by water, gave a filtrate, which left, on evaporation, a brown-red residue, having a bitter taste like the precipitate.

Agaric contains no glucoside; umbelliferon is found amongst the products of the dry distillation of its resin, and piric and succinic acids were noticed amongst the oxidation products obtained by boiling the resin with nitric acid.—*Ibid.*, Feb., pp. 111–125.

The yield of extracts was the subject for competition for the Meurer prize for apprentices in Germany. The report of W. Dankwortt, states that the following average yields (according to the processes of the German Pharmacopœia) may be regarded as finally settled: Extr. aurantii cort., 30; extr. belladonnæ, 3·5; extr. centaurei, 24; extr. chamomillæ, 25; extr. chinæ fuscæ frig. par., 12; extr. colombo, 10·5; extr. conii, 3; extr. digitalis, 4; extr. graminis, 26; extr. hyoscyami, 3; extr. lign. campech., 11·5; extr. liquiritiæ, 30; extr. millefolii, 25; extr. myrrhæ, 50; extr. pulsatillæ 4·5; extr. quassiæ, 5; extr. sabinæ, 23; extr. secal. cornut., 16; extr. senegæ, 24; extr. stramonii, 3; and extr. valerianæ, 24 per cent. For twelve other extracts the reported yields varied from twice to over seven times the quantities obtained by others. —*Ibid.*, pp. 128–132.

Purified Extract of Licorice.—In a notice on the preparation of this article, E. Ungewitter states that, by digesting stick-licorice in 90 per cent. alcohol, a resinous constituent of a disagreeable acrid taste is removed and the resulting extract (obtained with cold water) has an agreeable, purely sweet taste.—*Ibid.*, p. 134.

Exsiccated Syrups.—In addition to his experiments with dried almond syrup (*see* "Amer. Jour. Phar.," 1874, p. 362), Dr. Enders has found that the syrups of marshmallow and red poppy petals may be treated in a similar manner, by evaporating the recently-prepared syrups in a steam-bath to dryness, powdering the residue and keeping it in well-stoppered bottles. Dissolved in four-fifths its weight of water, such a powder yields an unobjectionable syrup.—*Ibid.*, p. 136.

Identity of Lycina and Betaina.—Prof. Aug. Husemann, in comparing the properties of lycina ("Amer. Jour. Phar.," 1864, p. 225) with those of betaina (*Ibid.*, 1869, p. 559), arrives at the conclusion that both alkaloids are identical, he having satisfied himself that the former, on being heated with hydrate of potassium, yields trimethylamina like the latter. Their composition is $C_5H_{11}NO_2$, isomeric or polymeric with butalanina of Gorup-Besanez, and with lactamethan and lactethylamid of Wurtz. O. Liebreich * has already proven the identity of betaina with a base obtained by him by acting with monochloracetic acid upon trimethylamina, and with oxyneurina, resulting from oxidizing neurina $C_5H_{13}NO$, which was obtained from the protagon of brain-substance by boiling with baryta water. The author believes, with Scheibler and Liebreich, that

* "Berichte d. deutsch. chem. Gesellsch.," 1870, p. 161.

betaina and lycina do not pre-exist in the plants, but are formed from a body similar to the animal protagon, by the prolonged action of muriatic acid during evaporation.—*Ibid.*, March, pp. 216–218.

Dangerous Properties of Anilin Colors Containing Arsenic.—A. Husemann reports the case of several children who had been poisoned by eating cakes colored with fuchsina. One death occurring, only very minute traces of arsenic could be detected. The fuchsina contained 2½ per cent. arsenic acid, and the amount of coloring matter in the cakes was so small that not more then one-tenth or one-fifth milligram of poison could have been eaten. The author regards, therefore, arsenic in combination with the anilin derivatives as infinitely more dangerous than in its free state or in combination with other bases; and that this may be caused by the intimate contact of these colors with animal membrane.—*Ibid.*, pp. 219–222.

Scammony resin, prepared from the root, contains, according to Aug. Hess, some tannin, which may be readily removed by animal charcoal; prepared from scammony it is free from tannin; but there is scarcely any difference in the medicinal activity of the two kinds.—*Ibid.*, pp. 223–230.

Test for Morphia.—A. Husemann directs attention to the delicacy of the test proposed by him some years ago,* by which one-hundredth milligram may be detected. The morphia, or its salt, is left in contact with concentrated sulphuric acid for 12 or 15 hours, or heated with it to 100° C. for half an hour, or to 150° C. for a few moments. On the addition of a little nitric acid, or of a nitrate or chlorate, chlorine water, chlorinated soda or of ferric chloride, a beautiful bluish-or reddish-violet color is produced, which soon passes into deep blood-red and gradually becomes paler. The presence of small quantities of coloring matter does not prevent the reaction, if the chlorinated reagents are selected in applying the test.—*Ibid.*, pp. 231–232.

Arsenic in Paperhangings.—This subject, which has repeatedly engaged the attention of investigators, was again examined by Dr. N. F. Hamberg, of Stockholm, who, from a series of carefully performed experiments, arrives at the conclusion that, even if the colors are firmly fixed, the arsenic is gradually liberated as arseniuretted hydrogen, the atmosphere of the room being vitiated by these exhalations.—*Ibid.*, pp. 233–253.

Hydrated Aconitia.—Hager ascribes the greater activity of some aco-

* "Annalen der Chemie und Pharmacie," Vol. 128, p. 305.

nitia to its having been dried at an elevated temperature. If dried at the temperature of a water-bath, it contains no water and is then *not* completely soluble in 50 parts of boiling water. Dried at a lower temperature it may contain 20 per cent. of water without being moist; and this is the article officinal in the German (and U. S.) Pharmacopœia. *Phar. Cent. Halle*, 1874, No. 51.

To Preserve the Bright Metallic Surface of Sodium.—R. Böttger recommends to immerse the sodium in alcohol until its surface has acquired a bright metallic lustre; it is then rapidly transferred to another dish containing pure petroleum benzin, and from this into a solution of chemically pure naphthalin in petroleum benzin, in which it will keep unaltered.—*Ibid.*, 1875, No. 7.

To Extinguish the Flame of Burning Petroleum.—C. Ommeganck found chloroform to be well adapted, one-twentieth and even one-sixtieth of the volume of the burning petroleum being sufficient for the purpose, and the effect being almost instantaneous. If petroleum is mixed with one-fifth its volume of chloroform, it is not inflammable by ordinary means. The author believes that petroleum fires may thus be readily extinguished in the beginning, and suggests that ships, &c., loaded with this article, should also carry a certain quantity of chloroform for the purpose indicated.—*Jour. de Phar. d'Anvers*, March, 1874.

Bile and Sulphuric Acid as a Test for Glucosides.—H. Brunner's suggestion (*see* "Amer. Jour. Phar.," 1875, p. 15.) to use Pettenkofer's bile reaction as a test for digitalin, has induced E. Almquist to institute a series of experiments, in which he found that lactic, oxalic and tartaric acids, inosit and all the alkaloids that were at his disposal, gave negative results; but the reaction was obtained not only with sugar and glucosides, but also with dextrin, starch, inulin, paper, linen fibres, fragments of wood, &c.; also, with a single drop of beer. Brunner's reaction is, therefore, unreliable, unless applied to the pure glucoside, and in that case unnecessary.—*Archiv d. Phar.*, Dec., 1874, p. 515.

Artificial vanillin (*see* "Amer. Jour. Phar.," 1874, p. 331) is now prepared on a large scale by Dr. Haarmann from the cambium sap of pines. It is not made pure, but sold in the form of an extract, or, rather, of an alcoholic tincture, which contains 2 per cent., the average amount found in vanilla. The odor of pure undiluted vanillin is not entirely identical with that of vanilla; but in its diluted state, and particularly when used as a flavor, its odor is not distinguishable from vanilla. The

price of the alcoholic solution will be about two-thirds that of vanilla. —*Phar. Zeitung*, 1875, No. 17.

Solubility of Salicylic Acid in Glycerin.—One part of salicylic acid dissolves completely in fifty parts of cautiously-heated glycerin, the solution remaining clear after cooling, and may be diluted without separating the acid. A solution made with one part of salicylic acid, 20 to 30 parts of glycerin and 300 to 500 parts of hot water, has been used for some time in the surgical ward of the Bremen hospital.—*Ibid.*, No. 18.

Alkanin is best prepared by exhausting alkanet root with petroleum benzin, which leaves a brown coloring principle behind that is soluble in ether. It may be obtained entirely inodorous by placing the evaporating dish finally for a short time in a steam-bath.—*Ibid.*

Propylamina and Trimethylamina.—Schering states that the socalled propylamina as obtained from herring-pickle contains only 10 per cent. trimethylamina and some ammonia dissolved in water.* Instead of distilling herring-pickle, the commercial so-called propylamina is now frequently made by mixing the alkalies in the above proportions. On the application of a moderate heat, the commercial article must give off inflammable vapors, but not after the previous neutralization with hydrochloric acid. If thus neutralized and evaporated to dryness, absolute alcohol will dissolve from the residue only the trimethylamina salt. Pure propylamina has an ammoniacal odor and boils at 50° C. The odor of trimethylamina is similar, but its boiling point is +8° C.—*Ibid.*, No. 22.

The boiling-point of glycerin was, in 1860, found by Mendelejeff to be 290° C. (corrected) at a pressure of 759·7 m. m. A. Oppenheim and M. Salzmann have examined some colorless crystallized glycerin prepared by Sarg & Co., of Vienna. On distilling 20 grams, nearly the whole of it passed over at 282° to 282·5° C. observed = 289·67° and 290·17° C. corrected. Only a few grams of a thick syrup was left behind, which evolved the odor of acrolein on further heating. The colorless and inodorous distillate was again distilled, leaving a minute quantity of syrup in the retort; the observed boiling-point was 288° C., or, corrected, 290·4° C., the barometric pressure being 756·55 m. m. The distilled glycerin did not solidify at a temperature of between —12° and —20° C.—*Berichte d. deutsch. chem. Gesellsch.*, vii, p. 1622.

Pterocarpin from Red Saunders.—On mixing 500 parts of powdered

* *See* also "American Journal of Pharmacy," 1873, p. 238.

saunders, 150 parts of slacked lime and some water, drying the mixture and exhausting the residue with ether, Cazeneuve obtained, after the distillation of the ether, crystals, which are purified by dissolving them in boiling 85 per cent. alcohol. Pterocarpin has the composition $C_{20}H_{16}O_6$, is insoluble in water, sparingly soluble in cold alcohol, more in ether and freely in chloroform. Sulphuric acid colors it red, and cold nitric acid dissolves it with an emerald-green color; it appears to be a glucoside.—*Bull. de la Soc. Chim. de Paris*, Feb., 1875, p. 97.

Wafer Capsules for Powders.—S. Limousin describes the manner of filling the wafer capsules proposed by him ("Amer. Jour. Phar.," 1873, p. 190) together with the necessary apparatus. The concavely-pressed wafer discs are placed into suitable receptacles arranged upon a board, and the powder, divided into the proper doses, is put into the wafer, while the interior surface of the margin of another empty disc is moistened by means of a simple contrivance. The empty wafer, which is intended as a cover for the first one containing the powder, is placed upon it, the margins are slightly pressed together with the fingers and then firmly united by means of a small lever press.—*Rép. de Pharmacie*, 1874, pp. 743–746.

Action of Hydrogen upon Nitrate of Silver.—N. Békêtoff concludes, from his experiments, that pure hydrogen, passed through a neutral or slightly acid solution of silver nitrate, reduces some silver with the formation of a corresponding quantity of water; but he believes that the reaction is arrested when the liquid has attained a certain degree of acidity.—*Ibid.*, 1875, p. 37.

Valerianate of caffeina has been recommended by Dr. Paret, and was found very effectual by Dr. Gubler, in the persistent vomiting of hysteria. It is given in the form of pills, in doses of 0·1 gram, (1½ grains) to be repeated six or eight times in twenty-four hours.—*Ibid.*, pp. 79-81.

Neutral sulphovinate of quinia is prepared by Prof. P. Jaillard, by introducing 8·71 grams of officinal sulphate of quinia into a boiling solution of 4·27 grams sulphovinate of barium in 100 grams distilled water, care being taken that both salts are completely decomposed. The clear filtrate is evaporated by means of a water-bath to a syrupy liquid, which, on cooling, forms a crystalline mass; this is dried either by pressure or under a bell-glass over burnt lime, and reduced to powder. Thus prepared it is soluble in twice its weight of water, and this solution is adapted for hypodermic injection. If the salt is prepared from sulphovinate of sodium and sulphate of quinia in the presence of alcohol, it is less soluble, requiring four parts of water.—*Ibid.*, p. 102.

NOTE ON *JABORANDI.*

BY D. PARODI.*

The accounts of the properties of *jaborandi*, which was sent to Europe by Dr. Coutinho, of Brazil, and experimented with by Dr. Rabuteau, reminded the author of a plant bearing the similar name of *Yaguarundi*, and used among the Paraguayans in domestic practice. The botanical notes, taken from a living specimen, indicate that the *Yaguarundi*, of Paraguay, belongs to the natural order of *Piperaceæ*. It should be known, however, that, in the Guarany tongue, the names of plants are generic, indicating a similarity of some remarkable property or character; that of *Yaguarundi* being applied to various plants of an acrid and pungent taste, and among them, to several of the *Rutaceæ*. But the true *Yaguarundi*, medicinally employed by the Indians, is a nearly-smooth, suffruticose plant; leaves petiolate, about 9 inches long, subcoriaceous or rather membranaceous, ovate to oblong-ovate, somewhat tapering at the apex, rounded and unequal at the base; the spikes are opposite the leaves, erect, medium sized, hermaphrodite, the short peduncles finely pubescent; the filaments are long, thick, withering; anthers 2, one-celled, converging at the apex; style very short persistent; stigmas 3, rarely two. The author regards this to be *Piper jaborandi* Velloso.†

The leaves, tops and root of the plant act as a sialagogue and diaphoretic, and are, for this reason, employed against the bites of venomous reptiles, the juice being applied to the wound, and the infusion freely taken internally.

By distillation with water of the leaves and spikes containing flowers and unripe fruit, and treating the distillate with chloride of calcium, a volatile oil was obtained, having an acrid and biting taste, and yielding, with hydrochloric acid gas, a crystalline compound.

The decoction in the retort was evaporated, the extract treated with strong alcohol, the tincture evaporated, the residue dissolved in acidulated water, agitated with benzin, this solvent evaporated, and the residue treated with absolute alcohol. By spontaneous evaporation, prismatic

* Abstract from a translation furnished by Louis A. Matos.

† The plant described by Velloso has four stamens and four stigmas; that described by Parodi has two stamens and three stigmas.‡—E. M. HOLMES, *Lond. Pharm. Jour., April* 3, *p.* 781.

‡ The species of *Piper* which has found its way to Europe, under the name of *jaborandi* (*see* page 177 of our last number), seems to differ from the above.

crystals are left behind, consisting of an alkaloid, which is readily soluble in amylic alcohol and benzin, but slightly in dilute acids and in ether, and is precipitated by phosphotungstate and phosphomolybdate of sodium. Its affinity for acids is weak. From an ultimate analysis, and the composition of its hydrochlorate, the formula $C_{10}H_{12}N_2O_3$ (O = 16) was calculated; the author has named it *jaborandina*.—*Revista Farmaceutica, Buenos Aires*, 1875, *Jan.*

NOTE ON A SPURIOUS SENNA.*

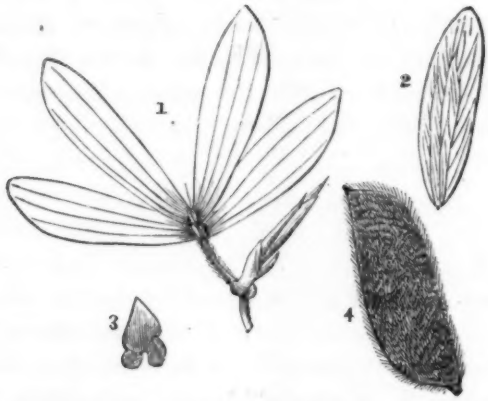
BY E. M. HOLMES.

Curator of the Museum of the Pharmaceutical Society.

During the past month, a drug has been offered for sale in London, under the name of "fine senna," which evidently differs considerably in botanical characters from the true article, although in size and color somewhat resembling the Tinnevelly variety. Of this "fine senna" I was informed, when I received a sample, that two bales only were in London, although no less than the enormous quantity of 200 tons was consigned to the agent here, and would probably arrive before long in this country. Hence it appeared probable that this senna might enter into commerce, and that its history and medicinal properties would therefore be worthy of investigation. With this view I examined the few leaves and pod that were first received, and found that they were evidently the produce of a leguminous plant, possibly belonging to the genus *Cassia*; but if so, certainly to a different section to that to which the officinal senna belongs. The genus *Cassia* being an extremely large one, I at once forwarded my specimen to Professor Oliver, who identified it as probably belonging to *Cassia brevipes*, D. C., a native of Costa Rica and Panama. A further supply of the leaves fortunately contained some flowers and young twigs, which were sufficient to enable me to confirm beyond a doubt Professor Oliver's opinion. The sub-genus *Chamæcrista* to which this plant belongs, contains herbs and shrubby plants with pinnate leaves and conspicuous stipules, the flowers being either solitary in the axils of the leaves, or sometimes subfasciculate on a very short, common peduncle. There are seventy-eight species in this sub-genus; but the small group of about nine, to which *Cassia brevipes* belongs, consists of plants which are so closely allied as to form an almost continuous

* Read at an Evening Meeting of the Pharmaceutical Society of Great Britain, on Wednesday, February 3, 1875.

series, the leaves being very similar throughout the group. Our plant is, however, distinguished from its congeners by its short, very hairy pod, with the hairs golden yellow and not appressed.



1, Shows an entire leaf with a flower bud in the axil of the leaf; 2, the venation of a leaflet; 3, a stipule and 4, the pod, natural size.

The following is a discription of the drug I have received: The twigs above-mentioned have hairy stems, and the leaves are alternate, compound, with a very short petiole, bijugate, and the rachis ends in an extremely fine, short, hair-like point. The leaflets, which are so closely placed as to overlap each other, are entire, unequal at the base, about 1¼ inch long, somewhat elliptic in outline, the lower margin being less curved than the upper; they are mucronate at the apex. The most marked feature, however, consists in the venation. Three principal veins start from the base of the leaf, and diverging but slightly, proceed nearly to the apex of the leaf. Each of these three veins is branched in a pinnate manner at a very acute angle (about 7°), so that at a casual glance the leaf appears furcate-veined. The two lower leaflets on each leaf are smaller than the two upper ones. The pods are brownish, about twice as long as broad, and covered with yellowish erect hairs. The stipules are lanceolate, with a cordate base, and have numerous minute veins. The flowers are large and yellow, with rigid scarious sepals, and are solitary in the axils of the leaves.

Thinking it probable, since it belonged to the same genus, it might perhaps have the same purgative properties as senna, I made two infusions, one of *Cassia brevipes*, and the other of Tinnevelly senna, each in the proportions directed in the British "Pharmacopœia" for infusion of senna. In appearance the two effusions were exceedingly dif-

ferent, that of senna being of a rich brown, and the other scarcely darker than almond oil. Both were neutral to test paper, and with acetate of lead, tincture of galls, and solution of perchloride of iron gave similar precipitates, those from the *Cassia brevipes* being rather paler and more scanty than those from the Tinnevelly senna. The taste and odor of both were similar.

Having tried a quantity of infusion equal to ¼ of an ounce of the leaflets, I found it to be without any effect whatever, while a similar quantity of infusion of Tinnevelly senna acted as a decided purgative.

This experiment, however, only proved that *Cassia brevipes*, D. C., is not purgative in ¼ of an ounce doses. I therefore tried the effect of a quantity of its infusion equal to ½ an ounce of the leaves, but with the same result as before. Hence I conclude that this new variety of senna is useless as a purgative, and can by no means replace or enter into competition with the official senna, even if it should be offered at a much lower price; and that should it, hereafter, occur mixed with ordinary senna, it must be looked upon as an adulteration.—*Pharm. Jour. and Trans., Feb.* 6, 1875.

CINCHONA, OR CHINCHONA?*

In his recently published "Memoir of the Lady Ana de Osorio, Countess of Chinchon," Mr. Clements R. Markham has revived the discussion of a question which, so far as preponderance of practice can determine anything, might now be supposed to have been satisfactorily settled. It is whether the orthography "Chinchona" or "Cinchona" should obtain for this now famous genus. Reserving for a future opportunity a criticism of Mr. Markham's book, we briefly indicate here his views upon this subject.

There can be no doubt that Linnæus, in naming the genus, sought to connect with it the name of this lady, who is reputed to have first made the healing virtues of the bark known to Europe. Whether he was well acquainted with the lady's name is not so clear. Mr. Markham thinks he was not, but that he received his knowledge of the Countess of Chinchon through a French source, and was thus misled into calling the genus *Cinchona* in the "Genera Plantarum" of 1742. He further thinks that Linnæus showed his uncertainty by the orthog-

* From the "Pharmaceutical Journal," February 13th, 1875, communicated by Daniel Hanbury.

raphy *Cinhona* which occurred in the edition of 1764, but that he died before the error was pointed out and corrected. Mr. Markham sums up his arguments by stating that all authorities agree that "Chinchona" is correct, and that consequently "Cinchona," "Cinhona," and other forms are wrong; that the object sought of commemorating the services of the countess is defeated by the mutilation of her name; that in much of the most important literature of the subject, the word is spelt "Chinchona," and lastly, that "the correct spelling should be universally adopted because it is right." He also quotes the following botanical authorities, who have explored the native forests of the genus, as spelling the word correctly: Pavon, Ruiz, Tafalla, Mutis, Zea, Caldas, Seemann and Spruce. Finally, with a chivalric admiration of the "illustrious and beautiful lady, Ana de Osorio," which is manifest throughout the book, Mr. Markham pleads that the correct spelling may be retained as the only way by which the "memory of her who made known to the world the inestimable value of quina bark" may be preserved.

On the other hand, it has been contended that Linnæus purposely omitted the *h* for the sake of euphony, and that the law of priority must obtain; that botanical names are means, not ends, and their use as means once established, it is all but impossible to alter them. Further, that "Cinchona" has been so universally adopted that great inconvenience and confusion would result from any attempt to substitute "Chinchona" for it.

Apropos to this discussion, Mr. Hanbury has taken the opportunity of investigating the introduction by Linnæus of the genus *Cinchona*, and has pointed out that the misspelling of the name of the Countess occurs in several authors much earlier than Linnæus. He also proves that Mr. Markham is far from correct in asserting that the Spanish botanists, one and all, support the mode of spelling he (Mr. M.) advocates; but that, on the contrary, Mutis, as well as Ruiz and Pavon, follow the orthography of Linnæus. Mr. Hanbury's strictures are contained in the "Athenæum" of Jan. 30th, and are as follows:

"In connection with Mr. Markham's proposal in his 'Memoir of Lady Ana de Osorio,' reviewed in the 'Athenæum' of the 23d of January, that botanists should abandon Linnæus' word *Cinchona* (Sinkona) in favor of *Chinchona* (Tshin-tshona), and, as I presume, that doctors, pharmacists and chemists should do the same, and that the reform should extend to the words *Cinchonine*, *Cinchonidine* and *Cinchoni-*

cine, as well as to any other derivations from the word *Cinchona*, may I be allowed a few remarks on the origin of the Linnæan name, and on some of the arguments used by Mr. Markham to support his case?

"It may be at once conceded that *Chinchona* is a word which better commemorates the Countess of Chinchon than does *Cinchona*.

"But let us trace the introduction of the genus Cinchona by Linnæus, and for this purpose let us have recourse to the actual volumes which formed part of the library of the great botanist, and are, many of them, enriched with his MS. notes. They are now in the possession of the Linnean Society of London.

"In an interleaved copy of the 'Systema Naturæ,' published in 1740, there occurs in the section 'Pentandria Monogynia' a memorandum in Linnæus's hand, after the genus Genipa—'*Quinquina Cond.*' This is the first allusion to the tree discovered by La Condamine, and on which Linnæus founded the genus.

"In 1742 appeared the second edition (*aucta et emendata*) of the 'Genera Plantarum,' and on one of the two pages of Addenda (p. 527) is the following sentence: 'In Pentandria monogynia *post* Genipam, Num. 168–1021, Cinchona. Quinquina *Condamin* Act. Gall. 1738.' In the 'Ordo Generum,' the name is again printed Cinchona, and so likewise in the index.

"In the fourth edition of the 'Systema Naturæ,' published at Paris in 1744, we read at page 30: 'Cinchona. *Quinquina*. Cond. Le Quinquina,' and the same spelling is adopted in the editions of 1748 and 1756. Again, in the fifth edition of the 'Genera Plantarum,'—'*ab auctore reformata et aucta*,' which appeared at Stockholm in 1754, the spelling of the controverted word is again (p. 79) Cinchona, and so it is in in the 'Species Plantarum,' of which the first edition was printed in the previous year (1753).

"From these quotations it may be fairly assumed that Linnæus fully meant to use the word Cinchona, and that its occurrence as '*Cinhona*' in one solitary instance in the sixth edition of his 'Genera,' 1764, was a mere typographical error, and not, as Mr. Markham seems to think, a proof that he desired to spell the word correctly.

"'It was still more unfortunate,' says Mr. Markham, 'that Linnæus died before the error was pointed out and corrected. This was done by the Spanish botanists, Ruiz and Pavon, who landed in Peru in 1778, the very year of Linnæus's death. They explored the forests of Huanuco and Loxa, discovered many new species of *Chinchonæ*, and are

among the highest authorities on the subject. They strongly advocated the correct spelling. . . . The botanist Mutis, with his disciples Zea and Caldas, were engaged in the study of the *Chinchonæ* of New Granada, the former residing in South America, chiefly at Bogota, from 1783, until his death, in 1808. They also spelt the word correctly. . . .'

"That Linnæus could not have been ignorant of the correct spelling at a much earlier date than that mentioned seems probable from the following circumstance: In 1758, J. Ch. P. Peterson read at Upsala an academic dissertation, 'De Cortice Peruviano,' Linnæus presiding. In this production, which was afterwards printed, the name of the Spanish Viceroy appears (more than once) as 'Comes del Chinchon,' while the bark is spoken of 'Chinchona,' and never as Cinchona ('quamvis nonnulli Chinchonam in scorbuto esse magni ponderis remedium . . . .' p. 10).

"As to Mutis, Mr. Markham overlooks the fact that that botanist was residing at Bogota, not merely in 1783, but in 1763, under which latter date he wrote thence to Linnæus; and that a correspondence was kept up between them for eighteen years. Some of Mutis' letters are fortunately extant, and form part of the Linnæan collections at Burlington House. As they throw some light on the subject, I have made from them a few extracts. Translations of the letters may be found in Sir J. E. Smith's 'Selection of the Correspondence of Linnæus,' London, 1821.

"24th Sept., 1864. (Mutis to Linnæus.) 'Verum ne plane ineptissimæ hæ literæ tibi viderentur, iconem et flores quosdam Chinchonæ adjungere duxi. An descriptioni suæ figuram ullam addiderit Celeberrimus de la Condamine, vel an plantam siccam examinasse tibi licuerit, necne, cum nullam notam in descriptione Chinchonæ editionis Holmiæ 54 videam, non plane mihi constat.' [The drawing and specimens here alluded to, still exist in the Linnean herbarium.]

"3d Oct., 1767.—(The same to the same.) '. . . . sane præter ultimas lineas, in quibus nunciabatur, te Cinchonam accepisse; quasque in Civitate Bogotensi, antequam illinc longissimæ peregrinationi paratus decederem, summa jucunditate legisse contigit. . . . . .'

"15th May, 1770.—In this letter the name of the plant occurs four times, and is always written after the fashion of Linnæus with one *h*. Appended to the letter, Mutis sends a botanical description of a plant which he calls *Cinchona Gironensis*.

"6th June, 1773.—Mutis here acknowledges the receipt from Linnæus of certain works of the latter, and expresses his pleasure at the honorable mention of himself by Linnæus under the head of Cinchona; and he also refers to a small present which he transmits by Don Ruiz-Pavon, who is going to Upsala.

"8th Feb., 1777.—This letter contains notes on some plants sent by Mutis to Linnæus, one of them being entered as *Cinchona Bogotensis*.

"12th Sept., 1778.—A long letter of condolence from Mutis to the younger Linnæus. It contains the following passage: 'Maxime disto a solo natali Cinchonæ officinalis a me detectæ, cujus viciniis crescit etiam Mutisia.'

"In none of these letters is there a hint of disapprobation of the name Cinchona, which it will be noticed that Mutis adopts, immediately he finds it used by Linnæus.

"Mr. Markham asserts that the error was pointed out by Ruiz and Pavon. But surely he cannot be conversant with the 'Quinologia' of Ruiz, published at Madrid in 1792, or with the 'Suplemento,' which appeared, under the joint authorship of Ruiz and Pavon, nine years later, in neither of which works is the name of Linnæus's genus written otherwise than Cinchona. Mr. Markham must be also unaware that in the 'Flora Peruviana et Chilensis' of Ruiz and Pavon, the name in dispute is uniformly written Cinchona, and never Chinchona. Pavon, indeed, in his later years is stated by Howard to have pleaded for the word Chinchona. This was done in his 'Nueva Quinologia,' a work written between 1821 and 1826, but which never saw the light until 1862, when it was edited in an abridged form by Mr. Howard.

"But the error in the name of the Spanish viceroy originated long before the time of Linnæus. Sebastiano Bado, the author of 'Anastasis Corticis Peruviæ' (Genoa, 1663), and one of the principal authorities for the early history of Peruvian bark, writes '*Cinchon*' for Chinchon. Morton, in his 'Pyretologia,' 1692, mentions the Count's name in the same inaccurate manner. So does La Condamine in 1738, and Geoffroy in 1741. By some of these writers Linnæus was misled, and was afterwards, perhaps, fortified in his error by the rules he had laid down about the immutability of generic names.

"That one of these rules was supposed to apply to the case in question, is evident from the remark of Ruiz: 'Linneo parece que debió haber expresado el titulo de los Condes de *Chinchon* en su género, dandole el nombre de *Chinchona* y no el de *Cinchona*, con el que tambien le

nombro yo, atendiendo al Canon 243, de su Filosofía Botánica en que dice, *Nomen genericum dignum alio, licet aptiore, permutare non licet.*'*

"Though the Canons of Linnæus may no longer command the implicit obedience that they were once thought to deserve, it cannot be denied that there is a general reluctance among botanists to alter the Linnean names, and this is particularly the case in the present instance, where the alteration advocated would require to be followed in innumerable writings on pharmacy and chemistry. 'In our science,' wrote Dr. J. E. Smith, in 1807 ('Introduction to Botany'), 'the names established throughout the works of Linnæus are become current coin, nor can they be altered without great inconvenience. Perhaps, if he had foreseen the future authority and popularity of his writings, he might himself have improved upon many which he adopted out of deference to his predecessors, and it is in some cases to be regretted that he has not sufficiently done so."

ON A SIMPLE APPARATUS FOR ESTIMATING UREA.

BY RICHARD APJOHN, F. C. S.

Prœlector of Chemistry in Gonville and Caius College, Cambridge.

A rapid and accurate process for estimating urea is of so much importance in a medical point of view, that the recent memoir of Russell and West on the subject (see "Journal of the Chemical Society," August, 1874) has necessarily attracted much attention. The principle of the method they have employed is the same with that suggested many years ago by Davy, viz., that urea, when brought into contact with hypochlorite of calcium, is resolved into nitrogen, carbonic anhydride, and water in virtue of the following reaction:

$$2(CON_2H_4) + 3(CaCl_2O_2) = 3(CaCl_2) + 2(CO_2) + N_2$$

For the hypochlorite of calcium Russell and West have substituted a mixed solution of hypobromite of sodium and caustic soda, which, by a like reaction, yields similar products, the carbonic anhydride, however, being absorbed by the caustic alkali. Working with the latter solution, I have recently made many experiments which have conducted to the conclusion, that at a given temperature and pressure a given quantity of urea always yields the same volume of nitrogen. Operating

"* It seems that Linnæus ought to have indicated the title of the Counts of Chinchon, by giving to his genus the name Chinchona, and not Cinchona, which latter, however, I adopt, in accordance with Canon 243 of the 'Philosophia Botanica,' which says: *Nomen genericum*, etc."

with 0·15 grms. of urea, the barometer being at 30, and the thermometer at 60°F. the volume of the nitrogen disengaged and collected over water was found to be 55 c.c., a result almost identical with that obtained by Russell and West.

The apparatus which I have devised for the estimation of the urea is materially different from that employed by Russell and West. It is, I think, more simple, more easily worked, and will give results of at least equal accuracy. It also possesses the advantage that the materials for its construction are to be found in every laboratory. They are :

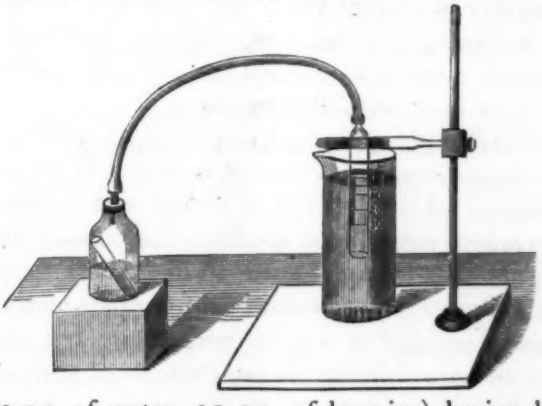
1. A glass measuring tube of about a foot in length, drawn out at the end, which will be uppermost when the tube is used, like a Mohr's burette, and subdivided into 30 parts of equal capacity, the aggregate volume of which is 55 c.c.

2. A small wide-mouthed gas bottle of about 60 c.c. capacity.

3. A short test-tube of about 10 c.c. capacity, and of such height that when introduced into the gas bottle it will stand within it in a slightly inclined position.

The following are the arrangements for combining the apparatus and working an experiment :

The graduated tube, held in a clamp attached to a retort stand, is depressed into a glass cylinder, nearly filled with water, until the zero mark, which is near the upper end, exactly coincides with the surface of the water. 15 c.c. of the hypobromite solution (100 grms. of



NaHO, 250 c.c. of water, 25 c.c. of bromine) having been poured into the flask, the test-tube containing the urine is introduced by means of a forceps, care being taken that none of its contents shall spill into the hypobromite. The flask is now closed with a very accurately fit-

ting india-rubber stopper, perforated with a hole in which is inserted a short piece of glass tubing, open at both ends, and is then connected with the measuring tube by means of a piece of elastic tubing. It is now inclined so as to allow the urine to mix with the hypobromite. Effervescence at once commences, and as it proceeds the measuring tube is gradually raised so as to relieve the disengaged nitrogen from the hydrostatic pressure. The flask is shaken a few times, and when the reaction is completely over, the apparatus is left for a few minutes until it has acquired the temperature of the room in which the experiment is performed. Another exact levelling of the measuring tube is made, and the number of the division corresponding to the volume of the developed nitrogen is read off. Since 55 c.c. correspond to 0·15 grm. of urea, a single division corresponds to—

$$\frac{0{\cdot}15}{30} = 0{\cdot}005 \text{ grm. urea.}$$

Consequently, if n is the number of measures of nitrogen obtained in an experiment, $0{\cdot}005 \times n$ will represent the amount of urea present. But as the quantity of urine generally experimented on is 5 c.c., if x be the percentage of urea in the urine, $\frac{x}{20}$ will be the urea in 5 c.c.

Hence we have— $\frac{x}{20} = 0{\cdot}005 \times n$, and $x = 0{\cdot}1 \times n$.

It therefore follows that if we operate on 5 c.c. of urine each measure of nitrogen evolved will correspond to 0·1 per cent. of urea.

The accompanying rough sketch represents the apparatus just before the flask is inclined so as to bring the urine and the hypobromite solution into contact.

The following results, obtained from known quantities of pure urea, will give an idea of the accuracy which is attainable by this process:

C.c. of a 2 p.c. urea solution.	Measures of nitrogen evolved.	Weight of urea taken.	Weight of urea found.
7·4	30·0	0·148	0·150
7·2	28·0	0·144	0·140
6·0	23·8	0·120	0·119
5·0	19·5	0·100	0·097
4·4	17·0	0·088	0·085
4·0	16·0	0·080	0·080
3.0	12·0	0·060	0·060
2·0	8·0	0·040	0·040
1·0	4.0	0·020	0·020

In working with a specimen of urine, three experiments gave on

each occasion 3 per cent. of urea. In the case of another specimen, in two experiments the percentages of urea were 3·0 and 3·1.

By using a longer and narrower measuring tube, which would admit of finer subdivision, and by making the necessary corrections in the volume of the gas for temperature, pressure, and the tension of aqueous vapor, strictly accurate results could, I have no doubt, be obtained. It should, however, be recollected that the instrument is not intended to yield results of theoretic accuracy, and that in its present form the urea is estimated with sufficient precision for medical purposes.—*Chem. News*, Jan. 22, 1875.

VARIETIES.

MUCILAGE FOR MINERALS, ETC.

GEOLOGICAL MUSEUM, PRINCTON, N. J., April 19th, 1875.

Editor American Journal of Pharmacy:

My friend, Prof. R. P Whitfield, Palæontologist, of Albany, N. Y., was good enough to give me the following recipe for mucilage to mend fossils and minerals, and, after several months of experience with it in the Museum, I find it so valuable that, with his permission, I send it for the benefit of the readers of your journal:

Take of Starch, ...	℥ii
White Sugar, ...	℥i
Gum Arabic, ...	℥ii
Water enough.	

Dissolve the gum, add sugar, and boil *until the starch is cooked.*

Prof. Whitfield is in the habit of drying it into sheets, on paper, and redissolving when wanted. He does not claim to have originated the recipe; but thinks it is one of the compositions offered to the U. S. Government for gumming stamps.

It is certainly a very adhesive mucilage, and, owing to the sugar, never becomes brittle; so that it never scales off, as most glues do, from stones or other hard substances. In a geological cabinet, it is simply invaluable.

Very truly, FRANKLIN C. HILL, *Ph.G.*

TOOTHACHE.—Dr. G. C. Smith praises the following most highly: Take of carbolic acid, saturated solution; chloral hydrate, saturated solution; paregoric, fluid extract of aconite—of each one ounce; oil of peppermint, half an ounce; saturate the pledget of cotton, or a piece of sponge, and tightly pack into the cavity.—*Charleston Med. Jour., April*, from *Lond. Med. Record.*

THE PHYSIOLOGICAL ACTION OF THEBAINA.—Dr. J. Ott, of Easton, Pa., from his physiological experiments made with thebaina prepared by Merck, arrives at the following conclusions:

1. Thebaina is a tetanoid agent, and pigeons have no special immunity against it.
2. The tetanus is not cerebral, but spinal in origin.
3. The motor and sensory nerves, and the striated muscles are not affected by it.

4. It increases the pulse and blood pressure, by an action on the vasomotor centre and the heart itself.

5. The reflex action of the depressor nerve is in no way interfered with.—*Boston Med. and Surg. Jour.*, 1875, *April 8th.*

IMITATION OF WALNUT WOOD.—Dingler's "Polytechnic Journal," vol. 214, p. 426, gives the following directions for staining wood, and more particularly the European red beech and alder, in close imitation of American walnut: Well-dried and warm wood is impregnated once or twice with a solution of 1 part of extract of green walnut rinds in 6 parts of soft water, and before it is quite dry, a solution of 1 part of bichromate of potassium in 5 parts of boiling water is applied. The wood is allowed to dry thoroughly, when it may be polished in the usual way.

GLYCERIN FOR GAS METERS.—The superiority of glycerin over water for this purpose, according to Dr. Heeren, is founded in the fact that, in case water is used, one cubic metre of gas will carry with it about 23 litres of aqueous vapors, which the consumer will have to pay for the same as gas.

MINUTES OF THE COLLEGE.

The annual meeting of the Philadelphia College of Pharmacy was held on the afternoon of March 29th, at the College Hall, Charles Bullock, First Vice-President, in the chair. Twenty-two members entered their names in the register.

The minutes of the meeting held in December, 1874, were read and approved.

The minutes of the Board of Trustees for the last three months were read by William C. Bakes, Secretary of the Board, and, on motion, adopted.

The following report of Thomas S. Wiegand, Librarian, was read and accepted:

The Librarian respectfully reports that all the volumes in the Library are arranged according to the following classification, preparatory to making out a new catalogue:

1st. Encyclopædias and Dictionaries.
2d. Public Documents and Reports.
3d. Chemistry.
4th. Materia Medica and Pharmacy.
5th. Botany and Physics.
6th. Medical Treatises.
7th. Miscellaneous.
8th. Manuscripts, Theses and Reports of Committees on Scientific Matters.
9th. Serial Publications on Physics, Pharmacy, Chemistry, Mechanics.

All the theses have been bound, up to the year 1874, inclusive, there now being fifty-four volumes of that kind in the Library.

Fifty-five new volumes have been added to the Library since last report, most of them being exchanges with the "Journal"; some few, of very great value, as illustrating the natural history of the Cinchona tribe, being new volumes.

The report of Professor J. P. Remington, Curator, was read by him, and accepted.

In reporting upon the present condition of our Cabinet, the Curator is forced to admit that, whilst there have been many acceptable donations of specimens during last year, and the work of refitting and refurnishing has been going forward to some extent, it is yet a cause of great regret that on this, the day of our annual meeting in 1875, but about *fourteen months* before the opening of the American Centennial Exhibition, in 1876, when we shall be crowded with pharmaceutical visitors from abroad as well as from distant parts of our own country—finds us in a very backward state in regard to the necessary preparations for representing the progress which this institution has made during the century in the cause of pharmacy. It would seem eminently fitting that we should have here, in this hall, a collection of specimens and products which would be more commensurate with the needs of our College; *that* this is the place to display the contribu-

tions from the vegetable, mineral and animal kingdoms that have been appropriated as remedial agents in pharmacy, admits of no doubt; *that* this is the time to labor in this direction, and that this opportunity to obtain specimens and valuable contributions may pass away and not occur soon again is apparent to many of us. In view of these facts the Curator would respectfully appeal to the members of the College for aid in this particular. There is yet time, during the coming spring and summer, to fill the bottles which have been furnished by the Committee and placed in the new cases, and it is hoped that the appeal will not be in vain.

Respectfully submitted,

JOSEPH P. REMINGTON, *Curator.*

Professor Maisch expressed his hearty approval of the recommendation of the Curator, that early action be taken by the members in assisting to fill up the Cabinet with specimens, that a display may soon be made which will be creditable to the College. He called upon all the members to come forward, and contribute each something, either in labor or in specimens, towards fitting up the cases which are now in readiness to be filled. He offered the services of one member who was in attendance, and it is to be hoped that others will quickly follow this example.

Mr. Bullock and others expressed similar views, and the propriety of publishing a call for a meeting to be held specially for the consideration of this subject was suggested.

The following report on behalf of the Publication Committee was read by Henry N. Rittenhouse, and accepted:

To the Philadelphia College of Pharmacy:

The Publication Committee respectfully reports that the duties imposed upon it by Chapter VII, Articles III and IV, have been duly attended to during the past year. The new postal law, which went into operation at the beginning of the present year, requires the prepayment of postage on all periodicals at the office of publication. Although considerable expense is thereby imposed upon the "Journal," the Committee deemed it advisable not to raise the subscription price in consequence thereof, hoping that the subscribers would promptly pay their subscriptions in advance. In this the Committee have not been mistaken, the great majority of the subscribers having remitted in due time, and the remaining ones who are still in arrears will most probably comply with the Committee's request as soon as their attention will be specially called to this matter.

It has been deemed advisable to have suitable binders prepared, large enough to retain twelve numbers of the "Journal." These covers being suitable for permanent binding, as well as for preserving unsoiled a volume until it is complete and ready for the bookbinder, have met with considerable favor. They are sold, full cloth, at 75 cents, and cloth back and corners at 50 cents each.

The General Index to the first forty-two volumes of the "Journal," which was published two years ago, meets with a slow sale, and at least four hundred more copies must be sold before the Committee will be reimbursed for the expense of preparing and publishing the same; the price of the work having been fixed low, so that even those might be induced to procure a copy who are in possession of a portion of those volumes.

The Committee is pleased to report the unabating interest in the "Journal" taken by its friends, and take this opportunity of urging upon them, and more particularly upon the members and the graduates of this College, to furnish original contributions on suitable subjects, and of drawing attention to a suggestion in the Editor's report, referring to this matter.

HENRY N. RITTENHOUSE, *Chairman Publishing Committee.*

The Editor's report to the Publication Committee was read, giving a detailed account of his labors. It specifies the number of original communications received, selections made from theses, and essays contributed by members and others, many of which emanated from the pharmaceutical meetings of the College, which are now being well attended, and are increasing in interest. The following is an extract from the report:

To the Publishing Committee:

The Editor respectfully reports that, during the past year, the "Journal" has been regularly issued early in each month, and the arrangements with the printer are such that it is hoped all irregularities in issuing the "Journal" will hereafter be avoided. The adoption of a new style of type with the beginning of the present volume has been approvingly noticed by several correspondents and subscribers to the

"Journal," the appearance of which having been materially improved by the clearness of the type and the mechanical execution of the printing. The pharmaceutical meetings of the College have added considerably to the interest of the pages of the "Journal," a number of original communications having been presented, and the discussions, which are now reported more fully than they were several years ago, having been often of great interest to the readers of the "Journal" and the profession at large. Although pharmacists and other persons interested in science are invited by the by-laws to participate, this does not appear to be generally known, and the Editor would therefore suggest that non-members of the College be invited to present essays and other communications to these meetings through the Publication Committee, which ought to receive them by about the tenth day of the month in which the meetings will be held. For those intending to be present it would doubtless be of interest to be advised beforehand of some of the subjects to be brought forward, and the Editor would suggest that the title of the papers to be read, and the subjects to be introduced, be communicated—if possible—to the Registrar a week or ten days in advance of the meeting, so as to give this officer ample time to notify the members, who might then come to the meetings more fully prepared for discussion.

The foreign exchanges, which have been somewhat extended during the past year, have promptly come to hand, and it has been endeavored to select therefrom, as early as possible, the most important papers, either in full or as abstracts.

The annual report of the Treasurer of the Publication Committee was read, giving a detailed statement of its operations. It was accepted and approved.

The financial exhibit reflects great credit on the Committee for the judicious management of all the matters submitted to their care.

The report of the Business Editor, H. H. Wolle, was also read for information, and from the thorough manner in which he has attended to his duties the Committee have been materially assisted in their labors.

The report on the Sinking Fund was read by Thomas S. Wiegand, Chairman, on behalf of the Committee, showing a balance in his hands amounting to $843.68.

William C. Bakes moved that a Committee of five be appointed by the Chairman to take into consideration the proper course to be pursued by the College during the Centennial year, 1876. He suggested that the Members of the Committee give the matter their earnest consideration, and report their recommendations to the College at the meeting in June next. The motion was adopted, and the Chair appointed Messrs. Wm. C. Bakes, Robert Shoemaker, James T. Shinn, Alexander H. Jones, and Prof. John M. Maisch the Committee. A further motion, that the Chairman, Charles Bullock, be added to the Committee, was unanimously adopted.

This being the annual meeting, an election for officers, eight Trustees, and members of the standing committees was ordered.

The Chair appointed Messrs. William McIntyre and Edw. M. Boring, Tellers, who reported the following gentlemen unanimously elected, viz.:

President.—Dillwyn Parrish.
First Vice-President.—Charles Bullock.
Second Vice-President.—Robert Shoemaker.
Treasurer.—Samuel S. Bunting.
Recording Secretary.—William J. Jenks.
Corresponding Secretary.—Alfred B. Taylor.
Board of Trustees.—Robert Bridges, M. D., John M. Maisch, Daniel S. Jones, Thomas S. Wiegand, James T. Shinn, T. Morris Perot, William B. Webb, Joseph P. Remington.
Publication Committee.—John M. Maisch, Henry N. Rittenhouse, Thomas S. Wiegand, James T Shinn, Charles Bullock.
Sinking Fund Committee.—Thomas S. Wiegand, T. Morris Perot, James T. Shinn.
Editor.—John M. Maisch.
Librarian.—Thomas S. Wiegand.
Curator.—Joseph P. Remington.

There being no further business, then, on motion, adjourned.

WM. J. JENKS, *Secretary.*

MINUTES OF THE PHARMACEUTICAL MEETING.

The seventh meeting of the session was held April 20th, 1875, President Dillwyn Parrish in the chair. The minutes of the sixth meeting were read and approved.

The following donations to the Library and Cabinet were made: A copy of the "Year Book of Pharmacy," and "Transactions of the British Pharmaceutical Conference," from the Conference; and a specimen of a new variety of Cinnamon, from E. N. & J. B. Lawrence, which is mentioned on page 477 of Flückiger and Hanbury's "Pharmacographia," under the name of *China Cinnamon*; it is in unscraped quills, and has a saccharine and pungent cinnamon taste. A sample of the same in powder, ground by Bullock & Crenshaw, was likewise exhibited; it is much darker in color, but of a stronger cinnamon flavor than the ordinary powdered Chinese cinnamon.

The President presented a bottle of crab orchard salt, from Dr. Blackburn, with the request that it be examined.

G. W. Kennedy remarked, that in Tennessee this salt, but of a darker color than the specimen, is sold at retail, to be used in place of Epsom salt. Several analyses have been published in the "Journal" (vol xxxii, page 238 and xlviii, p. 212).

The President requested Rich. V. Mattison, who was present, to give the meeting his views on crab orchard salt, which he did, as follows:

"Crab orchard salt is obtained from a tract of land in Lincoln county, Ky., about three miles wide and fifteen long, called the 'Epsom Belt' Wells are dug in the ground, and the rain, percolating and lixiviating the soil, which contains a large percentage of the sulphates of sodium, potassium and magnesium, collects in these wells, and is from thence evaporated in iron kettles, and brought into the market in barrels. As found commercially, it consists of varying proportions of organic matter and water, from 15 to 40 per cent., with balance of the above alkaline sulphates and some sodic chloride. The insoluble portion (I have obtained 30 per cent. upon solution and filtration) consists of silicaceous and organic matter, with about one-tenth of one per cent. of ferric oxide.

"A short time ago the product of this belt of land was leased or purchased by a stock company (Col. Shelby, Dr. Blackburn and others), who now control the salt, and have raised the price of it from 23 and 27 cents to 63½ and 75 cents, selling it only in bottles. Regarding Dr. Blackburn's statement that 'a large quantity of artificial salt is sold, and that it is very injurious,' we agree to both statements. First. There is a very large quantity of artificial salt sold. Second. The sale of this artificial salt *is* very injurious, but *only* to the *pecuniary* interests of the company, and not, as Dr. Blackburn, who in the interest of the company desires to impress people with the belief that it is injurious to their health. It is no more so than Epsom salt, or similar purgatives."

Dr. Pile presented a handsome specimen of crystallized bromide of sodium.

Dr. Miller presented three samples of oil of cedar; pure German, cedar of Lebanon for perfumery, and a commercial sample of a strong turpentine in odor; also, Cochin ginger-root and a powder from it; this root is devoid of the coating of lime adhering to bleached Jamaica ginger, but yields a whiter powder; also, a sample of North Carolina and of Texas *serpentaria*. Prof. Maisch remarked that the former was the produce of *Aristolochia serpentaria*, Lin., and the latter of *A. reticulata*, Nuttall. The market is now almost exclusively supplied with the latter variety, which is known as Red River snake-root, and is sold for half the price of the former.

Dr. Miller also stated that stavesacre was sometimes sold for the seeds of *Delphinium consolida*, Lin.; the latter are much smaller and darker in color.

Prof. Maisch exhibited a block of hard-wood, fitting a drawer, and having several places excavated to receive small prescription weights, his attention had been called to this convenient arrangement by W. C. Bakes.

The following papers were read and discussed: On liquor potassii citratis, by A. Hohl; on wine of tar, by J. B. Moore; and on angelica-root, by Dr. Miller.

Prof. Maisch observed, that many indigenous drugs were frequently confounded either from want of knowledge on the part of the gatherer or from the identity of the common names, applied to very different plants in different sections of the country.

Attention being called to the inefficiency of root-cutters now in use, Dr. Miller stated that he had in use one made by the Enterprise Manufacturing Company and found it very serviceable.

Messrs. McIntyre, Mattison and Kennedy, the committee on formulas for elixirs, appointed by the American Pharmaceutical Association, were all present. Their chairman stated the object of the committee and what had been done, and desired an expression on the part of the meeting of any views that might be of service, and, if thought advisable, take some action on the subject. Samples were exhibited of elixir of calisaya bark, (A. P. A.,) and elixir of calisaya bark with iron, (A. P. A.,) and also so-called elixir of calisaya containing quinia, cinchonia and cochineal, and so-called ferrated elixir of bark containing quinia, cinchonia and citrate of iron.

The prevailing opinion was that there exists no necessity for the multiplication of this class of preparations; that a better acquaintance with the composition of elixirs has greatly diminished their use with physicians, and that the name of every preparation should be in accordance with its actual composition.

Upon motion the following resolution, offered by Dr. Miller, was adopted: "That elixirs containing alkaloids should be called by the name of their alkaloidal constituents."

Prof. Maisch exhibited a specimen of a resinous exudation from a plant unknown to him, which is used in Texas in making chewing gum; it had been sent by Mr. W. B. Addington.

Adjourned.

E. M. Boring, *Registrar pro tem.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

American Pharmaceutical Association.—The druggists and pharmacists of Boston and vicinity have been at work for some time past in making arrangements for the next meeting of this Association, which will take place in Boston on September 7th, next. We are glad to learn that they appear to be a unit in the endeavor to give the National Association a hearty reception, and to make the meeting an undoubted success. A suitable hall has already been secured, and the prospects for the exhibition are so encouraging, that the Local Secretary, Mr. S. A. D. Sheppard, will request, in his forthcoming Circular, to make application for space by June 1st, if possible. The attendance will most likely be larger than ever before, and it is to be hoped that all pharmacists and druggists, who feel an interest in the objects of the Association, will make application for membership; and that all who are or intend to become members, will postpone their summer vacation to participate in this meeting. In connection with this we venture to suggest to our

Western friends, that the fares by the Great Trunk Lines are now so very low, that it is hardly probable for these figures to be maintained until fall.

An important consideration at the next meeting, will be the arrangements for the meeting in 1876, and we are glad to learn that the Philadelphia College of Pharmacy has appointed a Committee to make suggestions, the intention being to enlist, as in Boston, the co-operation of the entire "Drug Trade."

The following is the Committee appointed in Boston to make the requisite arrangements for the next meeting:

Joseph Burnett, A. R. Bailey, L. Babo, S. M. Colcord, S. Carter, Henry Canning, E. H. Doolittle, W. S. Folger, M. H. Gleason, W. F. Horton, T. L. Jenks, R. R. Kent, J. S. Melvin, G. F. H. Markoe, J. S. Orne, I. B. Patten, W. B. Potter, N. J. Rust, B. F. Stacey, C. A. Tufts, B. O. Wilson, S. A. D. Sheppard, and Edward T. Kelley.

MASSACHUSETTS COLLEGE OF PHARMACY.—At the Annual Meeting, held March 1st, the following officers were elected: S. M. Colcord, President; B F. Stacey and Charles A. Tufts, Vice-Presidents; S. A. D. Sheppard, Recording Secretary; G. F. H. Markoe, Corresponding Secretary; E. L. Patch, Treasurer, and J. S. Orne, H. Canning, H. W. Lincoln, S. C. Tozzer, J. T. Leary, J. S. Melvin, I. B. Patten and D. G. Wilkins, Trustees.

PHILADELPHIA COLLEGE OF PHARMACY.—The Trust Funds, created by the donation of Peter Williamson and by the bequest of the late Professor Procter (*see* "Amer. Journ. Pharm.," 1874, p. 243), have been suitably invested, and the interest thereof will become available for the next course of lectures. The Board of Trustees have made the following regulations to carry out the objects for which the trusts were created:

"*The Peter Williamson Scholarship*, consisting of matriculation and lecture tickets, will, in accordance with the design of the donor, be annually awarded to one needy and deserving student, who may be elected by the Board of Trustees. Applications for this Scholarship, accompanied by the requisite documents, must be handed to the Senior Professor (Robert Bridges, M. D.) on or before September 1st, preceding the session. The Committe on Examinations and the Professors shall, after due examination, report on these applications at the meeting in October, when the Board of Trustees shall decide on awarding the Scholarship.

"*The Procter Prize* will be annually awarded to the most meritorious Graduate in Pharmacy; *provided* that, in accordance with the will of the late Prof. Wm. Procter, Jr., such a reward, consisting either of a medal, of books, of instruments, or of any other appropriate object, is deserved, in the opinion of the Board of Trustees.

The Committee on Examination and the Professors shall, previous to the Annual Commencement, specially report upon the most meritorious student of the Graduating Class, as determined from the regular examination, or from other proofs in addition thereto, and, if deemed worthy of the distinction, the Procter Prize shall be awarded to him by the Board of Trustees."

The Board has also adopted the following regulations for conferring the degree of *Master in Pharmacy* (*Ph. M.*)

"Every person upon whom this degree shall be conferred must be a Graduate of this College of not less than five years' standing; must have been engaged in the practice of pharmacy for the period named since his graduation, and must be of good moral character and professional repute. He shall present to the Senior Professor (Robert Bridges, M. D.) an original dissertation upon some subject connected with any of the branches taught in the College, together with suitable specimens of the results, and an account of whatever aid he may have received in his investigations; also the written evidence above mentioned. The dissertation, which shall be of his own composition, and written in his own handwriting, shall be carefully examined by the Committee on Examinations and the Professors, who shall report to the Board of Trustees upon its value, and if deemed sufficient, and the application be finally approved, the applicant shall receive the diploma of Master in Pharmacy."

THE ALUMNI ASSOCIATON OF THE PHILADELPHIA COLLEGE OF PHARMACY has adopted a new Constitution, by virtue of which all graduates of this College are members. No dues are to be paid, the income being derived from the charge for the certificate of membership ($5), which, we presume, is obtained by every graduate who values the recollections of his college life.

We notice from the printed Minutes that this Association has received from the Zeta Phi Society (Class 1873–74) $150, which sum is to be applied for furniture, whenever the College can spare a separate room for the purposes of this society.

THE NATIONAL COLLEGE OF PHARMACY AT WASHINGTON held its fourth annual meeting April 5th, President Ferguson in the chair, J. C. Fill, Secretary. After the reports of the officers and committees had been received, the resignation of Mr. G. G. Simms, as Professor of Pharmacy, was accepted, and Professor Oscar Oldberg elected as his successor. During the past winter, thirty-four students attended the lectures, three of whom graduated. It was stated that an alumni association has been organized. A Committee was appointed to confer with the medical profession of the district, with reference to the so-called "elegant pharmaceutical specialties."

The following officers were elected for the ensuing year: President, R. B. Ferguson; Vice-Presidents, F. S. Gaither and F. D. Dowling; Corresponding Secretary, Prof. O. Oldberg; Treasurer, W. L. Thompson; Librarian and Curator, Rud. Oldberg; Recording Secretary, J. C. Fill; Trustees, J. A. Milburn, J. R. Major, W. G. Duckett, J. D. O'Donnell and Chas. Becker.

ST. LOUIS COLLEGE OF PHARMACY.—The annual course of lectures, which closed March 22d, 1875, was attended by seventy-four students, seventeen of whom passed a successful examination before the Professors and the Board of Examiners, consisting of Charles Habicht, J. M. Good and Charles Bang.

Vice-President Good presented the diplomas, and Prof. O. A. Wall, M. D., delivered the Valedictory Address to the following graduates: Charles Geitner (Thesis: Iron and its Preparations), Henry Rommel (Sulphur), John R. Raboteau (Antimony), H. W. Barkhoefer (Bismuth), Charles A. Lips (Lead), Joseph E. Ilg (Polygala Senega), Francis Hemm (Morphology of Vegetable Organs), H. T. Bechtold (Jalap), Edward Gallenkamp (Æther), John G. Goehring (Sulphuric Acid), Wm. A. Brüchner (Iodine), Ernest Krebs (Antimony), Elliott Steinhauser (Opium and its Preparations), Fred. F. Reichenbach (Cinchona), Wm. C. Bohn (Bismuth), James R. Watkins (Percolation), Julius E. Koch (Creasote).

The prize for Materia Medica was awarded to F. Hemm; for Botany, to Chas. Geitner; and for Chemistry, to H. Rommel.

UNIVERSITY OF VIENNA.—The chair of pharmaceutical chemistry, made vacant by the death of Prof. Rochleder, has been filled by the appointment of Prof. Lieben, heretofore of Prague, Bohemia.

EDITORIAL DEPARTMENT.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—At the celebration of the centennial anniversary of the discovery of oxygen by Priestley, the chemists assembled at Northumberland, Pa, August 1st, 1874, took steps to suggest to the above association the establishment of a chemical section. The Association responded thereto, and at its Hartford meeting last summer, a new constitution was adopted, and under its provisions a section of "chemistry, chemical physics, chemical technology and metallurgy" was organized, of which Prof. S. W. Johnson,

of Yale College, was elected chairman, while Dr. F. W. Clarke, of Cincinnati, was deputed to make the necessary efforts to ensure a full attendance of chemists and others interested in the application of chemistry.

The next meeting of the Association will be held at Detroit, August 11th next, and continue about a week. Most of our readers being interested in chemistry, we take pleasure in directing their special attention to this new section, in which, to make it a success from the beginning, there should be a full attendance.

RICINUS COMMUNIS AGAINST VERMIN.—A recent number of the "Pharmaceutische Zeitung" contained a correspondence from Turin, Italy, stating that M. Mossa, pharmacist, has directed attention to the use made in Italy of the press-cakes obtained in the manufacture of castor oil; besides their use as manure, this residuary product serves for the destruction of the field mice and certain insects which are injurious to hemp; he recommends it against *Phylloxera vastatrix*, which has attracted much attention of late years for being very destructive to the European grape-vine, and also against the ravages of the Colorado potato-bug, *Doryphera decemlineata*.

A few years ago, we were informed by Mr. Chas. A. Heinitsh, that the saffron beds in Lancaster county, Pa., are protected against mice by planting a small variety of *Ricinus* among the *crocus*, and that this is regarded as an effectual remedy.

It will be remembered that the seeds from which the castor oil has been expressed, contain an acrid poison, and it is not impossible that this may be obnoxious to the lower animals. At any rate, the proposed remedy is so far superior, in regard to harmlessness, to Paris green, which is usually employed against the potato bug, that it deserves a careful trial.

EXPLOSIVE MIXTURES.—We have repeatedly alluded to serious accidents which occurred in the preparation of solid or liquid compounds put up upon physicians' prescriptions. The great majority of such explosions result from the injudicious combination of oxidizing agents with substances readily combining with oxygen with the elimination of gaseous products. One of these dangerous oxidizing agents is *permanganate of potassium*, which parts very easily with a portion of its oxygen under various circumstances. The dangerous nature of a solution of this salt in glycerin is well known to many pharmacists.

In the "Journal of the Austrian Apothecaries' Society," 1875, No. 8, Dr. Wittstein reports an explosion whereby a pharmacist was seriously injured about the eyes, and which occurred soon after the vial had been corked, after filling it with a solution of 10 grams of permanganate of potassium in 15 grams each of distilled water and alcohol. Wittstein states that such a mixture will always explode when kept in a stoppered vial. Permanganate of potassium, whether intended for internal or external use, is best prescribed, dissolved in distilled water and avoiding all combinations, but more particularly with carbon compounds.

THE STAMP TAX ON MEDICINES.—In our last number we have given the ruling of Internal Revenue Commissioner Douglass, in relation to the exemption of officinal and other medicinal preparations from stamp tax. Since then Mr. Alexander H. Jones, President of the Philadelphia Drug Exchange, has addressed the Commissioner on the subject, and we are pleased to state that this officer has modified his ruling

in accordance with the views generally entertained by druggists and pharmacists, with this qualification: that if two or more formulas for the preparation in question have been published on the same page, the one used must be specially designated. This is eminently proper, as the fundamental conditions for exemption are, that such medicines must be actually prepared by a known formula, and that the formula must be readily accessible to everybody by printing it either upon the label or by distinctly referring to the place where it may be found in any standard Dispensatory, or Pharmacopœia or Pharmaceutical Journal issued by an incorporated college of pharmacy.

We are indebted to Mr. Jones for a copy of the letter, which we print in full for the information of our readers:

TREASURY DEPARTMENT, WASHINGTON, April 2d, 1875.

SIR,—Referring to my letter of the 4th ultimo, and in reply to the letter of Alexander H. Jones, President of Philadelphia Drug Exchange, addressed to me under date of March 22d, to which you call my special attention in advance in your letter of the 20th ultimo, I have to inform you that the interpretation of the 22d Section of the Act of February 8th, 1875, as contained in my letter to you of March 4th as to the scope and intent of said Section, the extent of the exemption provided for medicinal articles, and the conditions on which such exemption is made to depend, are matters which were not passed upon hastily by this office, nor without full and careful consideration.

As I read Mr. Jones' letter I notice but a single point of any practical or vital importance, in which he differs in his views from the views entertained by this office as they have been officially set forth in Special 145, changed or modified by my letter to you of March 4th, which has been published in the "Internal Revenue Record."

Mr. Jones admits what this office holds—that all medicinal preparations or compositions whatever, made and sold, etc., wherein the person making or preparing the same has, or claims to have, any private formula or occult secret or art for the making or preparing the same, or has, or claims to have, any exclusive right or title to the making or preparing the same, or which are prepared, uttered, vended, or exposed for sale under any letters patent, or held out or recommended to the public by the makers, vendors, or proprietors thereof as proprietary medicines, are liable to stamp tax.

So much of the conditions of taxation under Schedule C, of the Act of June 30th, 1864, remains to-day as when first enacted. These conditions have not been changed, altered, or abridged by any legislation subsequent to that time. They are in force to-day as per Revised Statutes, Chapter E, Schedule A, Section 3437.

The Act of July 13th, 1866, Section 13, exempted from taxation medicines compounded according to formulas published in the United States or other National Pharmacopœia, etc.; at the same time declaring that there should be no exemption given by said Section to any medicinal articles, no matter by what rule, authority, or formula compounded, if the same were put up in a style or manner similar to that of patent or proprietary medicines in general, or if advertised as having any special proprietary claim to merit, or to any peculiar advantage in mode of preparation, quality, use, or effect, whether such claim is real or pretended.

Now it is for this last class of medicines, excepted from the exemption provided for by the last-named Act, medicines usually designated by the trade as "officinal," but "put up in the style or manner of patent or proprietary medicines," together with a class of medicines which are not regarded as "officinal," and not compounded according to any published authority, that Section 22, of the Act of February 8th, 1875, provides conditional exemption.

What are these conditions?

With regard to unofficinal medicines, the law is sufficiently explicit and plain, and there does not seem to be any difference of opinion between Mr. Jones and others and this office. They admit that the formula shall be printed on the label, and there shall be no proprietorship claimed. This is precisely the construction given in my letter to you of March 4th.

With regard to the "officinal medicines," "put up in the style of patent or proprietary medicines," for if they are not put up in such style they require no stamps, even though the formula be neither printed on the labels nor referred to thereon. Mr. Jones claims that a mere reference to the formula and the authority where found is sufficient, and gives his idea by an illustration as follows:

"Tinctura Opii Camphorata.
(Camphorated Tincture of Opium.)
Prepared by A. B.
Dose, etc.
See 'U. S. Pharmacopœia' (1873), page 315."

But let me ask what words in this form distinctly refer to a published formula? The words "Tinctura Opii Camphorata" do not. They give the name of the article, not the formula. The words "Camphorated Tincture of Opium" are a translation of the Latin words above—nothing more. The words "Prepared by A. B.," "Dose, etc.," in no manner refer to a formula. The other words—"See 'U. S. Pharmacopœia,' etc."—may distinctly refer to a book and the page where a formula for making this article may be found, but they do not distinctly, nor otherwise, refer to the formula itself.

The language of the Statute is "when such formula and where found shall be distinctly referred to on the printed label attached to such article."

It is not one or the other, but both, which are to be distinctly referred to. The copulative "and" not the disjunctive "or" is the conjunction employed in the Statute.

Sometimes two or more formulas are given for the preparation or compounding of the same article. On page 1471, "U. S. Dispensatory," 13th Edition, two * separate and distinct formulas are given for the preparation of "Tinctura Opii Camphorata."

* On page 315, "U. S. Pharmacopœia," there is but *one* formula for *Tinctura Opii Camphorata*. On page 1471, "U. S. Dispensatory," there are *two* formulas—one being that of the "*United States* Pharmacopœia," as above, the other that of the *British*.

How shall a distinct reference to the formula be made in such a case? Clearly not by simply naming the book and the page.

Something more than that is necessary for a distinct reference. Can a better method be adopted than by simply publishing the formula? Is such a publication harder in this case than in the case of unofficinal medicines where the formula *must* be published?

This office is of the opinion that the shortest, easiest, and most definite manner of referring *distinctly* both to the formula and where found, is the manner prescribed in office letter to you of March 4th, *but does not insist upon the publication in full of the formula.*

If, in addition to the other matter printed on the label, the name of the medicine, dose, directions, etc., the maker or compounder distinctly sets forth that the article made, prepared, or compounded by him is according to a published formula, and gives the medical authority—the book, edition, page, etc., or the medical journal, the volume, number, date of issue, and page, and if two or more different formulas are given by the same authority on the same page, designating the particular formula by its number on the page, as No. 1, No. 2. or in some other manner equally definite and distinct, this office will regard the condition of exemption complied with.

In conclusion, under the Internal Revenue Law now in force, this office holds—

(1.) That all patent and proprietary medicines and medicinal preparations, and all medicines, etc., for which any proprietary claim is made, real or pretended, must be stamped when sold, offered, or exposed for sale.

(2.) That officinal and standard medicines, etc., prepared according to the formulas published in authorized medical books or journals, put up and labelled simply with the name of the article and the name of the maker or compounder, are exempt from stamp tax, without the "formula and where found" being printed or referred to in any manner upon such label.

(3.) That officinal medicines, etc., put up in a style or manner similar to patent or proprietary medicines in general—the same being in retail packages with labels attached statin the diseases for which they are remedies, stating the dose and giving directions for use, are liable to stamp tax—*unless*, in addition to such matter as is indicated above, there shall be also printed on the label the formula and the reference to the standard medical book or journal where the formula is found; *or a distinct announcement that the article in question is made or compounded according to a published formula with a distinct reference to the standard authority where found in the manner hereinbefore described.* In this latter case such medicines, etc., so put up are not liable to stamp tax.

(4.) Unofficinal medicines, or medicines, etc., made, prepared, or compounded, but not in accordance with formulas published in any standard Dispensatory or Pharmacopœia, Pharmaceutical Journal, etc., are liable to stamp tax—*unless* the exact formula is printed upon the labels attached to such articles, and unless there is an absence of all claim to any proprietorship in the making or preparing of the same.

Very respectfully,

ALEXANDER P. TUTTON, ESQ., *Supervisor, Philadelphia.*

J. W. DOUGLASS, *Commissioner.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Histology and Histochemistry of Man. A Treatise on the Elements of Composition and Structure of the Human Body. By Heinrich Frey, Prof. of Medicine in Zurich. Translated from the fourth German edition by Arthur E. J. Barker, Surgeon to the City of Dublin Hospital, &c., with 608 engravings on wood. New York: D. Appleton & Co. 1875. 8vo, pp. 683.

Prof. Frey's work is regarded in Germany as one of the best treatises on this subject; it has passed there through four editions, and, through a translation into French, has become known to and is appreciated by the students of histology in France. Dr. Barker has done good service in making this work, which by its author has been revised up to the time of publication, accessible to the English-speaking histologist and the medical profession.

The introductory chapter gives a historical sketch of the beginning and development of this branch of science, which has reached its present acknowledged importance with the aid of the microscope and of chemistry, more particularly zoöchemistry.

The work is divided into three parts, the first of which treats in two sections of the elements of composition and of structure of the body, describing concisely, in properly-arranged groups, the chemical compounds found in the body, and the formation and development of the cell and other elements of tissue. This is followed, in Part II, by a consideration of the various kinds of tissue, those composed of simple cells in two groups, the connective tissues likewise in two groups, and the composite tissues. The remaining 260 pages are devoted to Part III, the organs of the body, which are divided into "organs of the vegetative type" and "organs of the animal group." A good index, of 19 pages, in double columns, concludes this

valuable work, which, with its comprehensive arrangement, its clear language, its judicious criticisms and its numerous illustrations, will constitute it a valuable addition to the library of the zealous student.

Botanischer Jahresbericht. Systematisch geordnetes Repertorium der botanischen Literatur aller Länder. Herausgegeben von Dr. Leopold Just, Professor in Carlsruhe. Erster Jahrgang (1873), Berlin: 1875. Gebrüder Borntræger. 8vo. pp. 744.

Annual Report on Botany. A systematically arranged repertory of the botanical literature of all countries.

This, we believe, is the first attempt to collect and report on the botanical publications which have appeared in the course of a year. This branch of scientific literature is by far too extensive as that every student of botany should be able to acquaint himself with all the publications which, in the shape of books or in periodicals, are continually appearing in civilized countries. The undertaking is, therefore, a most praiseworthy one, meriting the support of the botanist for the above reasons as well as because the task has, in this first volume, been accomplished in such a commendable manner.

The vast material has been judiciously divided, each branch having been assigned to a different botanist, and containing references to the publications in the German, French and English languages, while the entire botanical literature in the Dutch, Italian, Russian and Hungarian lauguages are specially reported on.

We have not the space to enter more minutely into the arrangement and object of this publication; we may be permitted, however, to state that the list of contents embraces 30 pages, and that the chapter on pharmaceutical botany has been reported by Professor Flückiger.

Eleventh Annual Report of the Alumni Association of the Philadelphia College of Pharmacy. 1875. 8vo, pp. 52.

Besides extracts from the Minutes, several reports, lists of officers and graduates, &c., the pamphlet contains the Introductory Address of Professor Remington to the fifty-fourth course of lectures, the Valedictory of Professor Maisch and the Annual Address before the Alumni Association by Laurence Turnbull, Ph. G., M. D. We have not the space to publish these addresses, which contain many interesting statements; but a passage in the latter seems to call for a few remarks in this place. Speaking of the late Professor Parrish, Dr. Turnbull remarked:

"This was the first time a non-medical man filled the chair of Materia Medica in this College, and we regret the change for three reasons: first, therapeutics and toxicology are less dwelt upon than formerly (more time being devoted to the leading physical characteristics of each individual drug and its commercial history); secondly, it is therefore less a preparatory school for medical students; thirdly, it is no longer a training school to supply professors to our medical institutions."

Whatever views may be held, regarding the necessity for the apothecary, of a thorough knowledge of the physiological action of medicines upon man and animals, it must be certainly granted that a knowledge of the botanical, physical, histological, chemical and commercial relations and of the proper doses of drugs, is of by far greater importance to the apothecary and druggist. Outside of the United States, physicians are only in exceptional cases appointed as teachers of pharmacognosy, as they cannot be conversant with drugs unless they have made these their special study for years. Regarding the two last points raised by Dr. Turnbull, we believe that the Colleges of Pharmacy were not established for the purposes indicated. It may perhaps be of advantage to the medical student to become acquainted with chemistry, pharmacy and Materia Medica, as taught from the standpoint of the pharmacist and druggist; but if it be true that the efficiency of a teacher is likely to increase with his experience, we cannot understand why colleges of pharmacy should be or become training schools to supply other institutions with professors.

Outlines of Proximate Organic Analysis, for the identification, separation and quan-

titative determination of the more commonly-occurring organic compounds. By Albert B. Prescott, Prof. of Organic and Applied Chemistry in the University of Michigan. New York: D. Van Nostrand. 1875. 12mo, pp. 192. Cloth, price $1.75.

A work like this has been needed for a long time, and although it does not cover as much ground as we should have desired for it, yet it is a very valuable addition to our literaure, and will prove of great service to those engaged in proximate analysis, since there is not, to our knowledge, another work in the English language in which the same kind of information is given in such a comprehensive and conveniently-arranged style. The author himself states that "this compilation is fragmentary and very brief," and we have, therefore, no reason to find fault with the absence of such compounds as gentiopicrin, arbutin, &c., or with the brevity with which a number of the alkaloids and neutral principles have been treated.

In examining the various articles, we have observed little that would seem to require correction or modification; as, for instance, the composition of colophony, which is abietinic anhydride. Many facts have been collected together in tabular form, and the reactions of identification, of separation and of quantitative determination, though briefly, are given very clearly, so that they may be readily understood by the somewhat advanced student of analysis, who alone is capable to undertake proximate analytical investigations.

We heartily recommend this little volume, and hope that in a future edition the author may find it convenient to extend it and to add thereto an outline of an analytical course, commencing with the crude material as may be found, for instance, in the very valuable work by Wittstein, entitled "Analyse von Pflanzen und Pflanzentheilen," to which we refer those of our readers who are conversant with the German language.

Chemical Examination of Alcoholic Liquors. A manual of the constituents of the distilled spirits and fermented liquors of commerce, and their qualitative and quantitative determination. By Albert B. Prescott, M. D., Prof. of Organic and Applied Chemistry in the University of Michigan. New York: D. Van Nostrand. 1875. 12mo, pp. 108. Cloth, price $1.50.

The title explains the aim of this manual. The directions are simple, in accordance with the design to make them not more elaborate than required for commercial, hygienic and legal purposes. The work is well adapted for the purpose for which it was written.

Year-book of Pharmacy: Comprising Abstracts of Papers relating to Pharmacy, Materia Medica and Chemistry, contributed to British and Foreign Journals, from July 1st, 1873, to June 30th, 1874; with the transactions of the British Pharmaceutical Conference at the Eleventh Annual Meeting, held at London, August, 1874. London: J. & A. Churchill. 8vo, pp. 664.

The issue of this volume was delayed through the protracted illness of the editor. The arrangement of the material is the same as in the volumes previously published, and which has been adopted for the last volume of the Proceedings of the American Pharmaceutical Association in so far that the Report on the Progress of Pharmacy commences the latter, as the volume now before us begins with the "Year-book," which covers 380 pages, the abstracts being, as usual, rather extensive. Then follows the list of members and the minutes of and papers read at the last Annual Meeting, of which we have given a brief account on page 485 of our last volume. A list of objects on exhibition during the meeting and the index, complete the volume.

Note on Salicylic Acid. By Edward R. Squibb, M. D., of Brooklyn. 8vo, pp. 10.

It reviews the chemical history and gives an account of the various uses for which this interesting compound has been recently recommended. The paper was read before the Medical Society of the State of New York.

Fifth and Sixth Annual Reports of the State Salt Inspector of the State of Michigan, for the fiscal years ending November 30th, 1873 and 1874. East Saginaw: 1875. 8vo, pp. 24.

Besides the official reports, the pamphlet contains a paper giving a sketch of the salt industry, together with an account of the uses of salt for curing hams, making cheese and butter and as a fertilizer. We learn that the first salt blocks in Michigan were opened July 4th, 1860. During the following year 125,000 barrels were made, and the number has steadily increased until, in 1874, it reached 1,026,979 barrels—a very gratifying result, particularly if taken in connection with the fact, that the inferior grade (second quality salt) is decreasing in amount. For the development of this industry, we presume, Michigan is, to a considerable extent, indebted to the efficient State Salt Inspector, Dr. S. S. Garrigues.

OBITUARIES.

DANIEL HANBURY is no more. As one of the most learned pharmacists of the present time, and one of the most thorough and indefatigable investigators of Materia Medica, his name will long be remembered, and his researches be as highly valued in the future as they are at present. Many of his classical essays have been republished in this Journal, and his last, which is embraced in a paper communicated to the editor with a letter written a few days before his last illness, will be found in the present number. Among the numerous societies of which he had been elected an honorary member, may be mentioned the American Pharmaceutical Association, and the Massachusetts, New York, Philadelphia and Chicago Colleges of Pharmacy.

The following biographical notice is taken from the London "Pharmaceutical Journal," April 3d:

"Daniel Hanbury was born 11th September, 1825. He was the eldest child of Daniel Bell Hanbury, who for many years was a valued member of the Council of the Pharmaceutical Society, and for eleven years its Treasurer. In early life he showed superior ability. At school he always maintained a foremost place, and attained a considerable degree of proficiency in classical studies, and also in water-color drawing.

"In the year 1841 he commenced his business training under the firm of Allen, Hanbury & Barry, of which his father was an active member. Here his peculiar abilities were speedily manifested and appreciated.

"His innate love of precision and accuracy were stimulated by the example and influence of Mr. Barry; he became an exquisitely neat experimenter, and his handwriting assumed the form which those familiar with it will never forget, combining in a singular degree, firmness, force of character, and complete accuracy of detail. Whatever he undertook was done with uncompromising thoroughness. He never spared himself any labor, nor sought the notice of those around him by talking of any effort he had made, but quietly brought his fine abilities to bear with painstaking conscientiousness on the one matter immediately before him, whether dispensing a prescription, posting an account book, or writing a scientific paper. With such qualities he not only accomplished a very large amount of work, but the quality of what he did was almost faultless.

"In the year 1844 he studied at the laboratory of the Pharmaceutical Society.

"His pursuits early brought him in contact with the late Dr. Pereira, who treated him with great consideration, and a warm friendship sprang up between the professor and his pupil, which lasted till the death of the former, and the remembrance of which has since often been manifested by Mrs. Pereira. His first contribution to this Journal was, we believe, on 'Turnsole,' in January, 1850. From that time to the present his papers are scattered thickly through our volumes, numbering, according to the index, sixty-one, the last being incorporated in an article entitled 'Cinchona or Chinchona,' published on the 13th of February, in the present year.

"The series of papers on Chinese Materia Medica, published in the years 1860–1–2, were highly esteemed by those most capable of appreciating them, and afford a characteristic example of accurate and careful research.

"He never wrote without having original information to impart, and his papers uniformly bear evidence of careful investigation and thorough knowledge.

"Most happily the work upon which he had been engaged for many years in conjunction with Professor Flückiger, the 'Pharmacographia,' was completed and published last year. This work is a storehouse of reliable information to which future generations will have recourse, and it is by his part in this important work that he will hereafter be best known. No one can read the historic sections of the book without being struck by the vast variety and extent of reading to which they bear witness.

"Narratives of travels were especially attractive to him. He took nothing at second-hand, but always sought his information from the fountain head. His library contained many Latin volumes of the early Portuguese, Dutch and Spanish voyagers, to which he constantly referred, and he eagerly read modern books of travel likely to throw light on his favorite studies.

"Whilst alluding to his writings, we must not omit to mention the important part he took in the preparation of the 'Pharmacopœia' of India, a work involving much labor. He was one of those deputed to draw up the Admiralty manual of scientific inquiry. Botany was the science to which he especially devoted his attention He contributed to the 'Transactions of the Linnean Society' the following papers: 'Note on Cassia Moschata,' H. B. et K., xxiv, 161; 'On the Species of Garcinia which affords Gamboge in Siam' (G. Morella), xxiv, 487, and with Mr. Currey, 'Remarks on Sclerotium Stipitatum and Similar Productions,' xxiii, 93; and numerous papers by him will be found in the 'Journal of the Linnean Society.'

"We believe he has collected a large mass of original information for a monograph on an important genus, and trust it may yet be given to science.

"Occasionally he contributed an article to the literary periodicals. A paper containing curious information on Frangipani, in 'Notes and Queries,' and another on the botanical origin and country of Myrrh, published in 'Ocean Highways' for April, 1873, will be remembered by some of our readers. He occasionally contributed to the 'Athenæum,' and a review of 'The Countess of Chinchon and the Cinchona Genus' is about to appear in the 'Academy.' He served on the juries of the International Exhibitions in 1862 and 1867, and in the former year acted as secretary to the jury on vegetable products, the proceedings of which were conducted in French In the year 1855 he was elected a Fellow of the Linnean Society, repeatedly served on its Council, and held the office of Treasurer at the time of his death.

"He was also a Fellow of the Chemical Society, and Member of its Council in the year 1869.

"In the year 1867, on his first nomination, he was elected a fellow of the Royal Society, and a Member of its Council in 1873.

"Of the Pharmaceutical Society he was a warm supporter almost from its origin. For many years (from June, 1860, to May, 1872) he rendered very valuable services as an examiner, often at great personal inconvenience, and he was a very constant attender of the evening meetings, to the usefulness of which he often contributed.

"In 1870 he retired from business. He never married, but lived with his parents, to whom he was a most kind and affectionate son. Though possessed of ample means, his habits, we believe, both from principle and taste, were remarkably simple and inexpensive. He disliked and shunned everything approaching ostentation, and luxury and self-indulgence were utterly alien to his life. He was always an early riser, and habitually got through an important amount of work in his library before breakfast, and few, indeed, were the moments wasted from early morning until he again retired to rest.

"Travelling on the Continent was one of his greatest pleasures. He read German. He had some knowledge of Italian, but he spoke French almost as a native, and hence travelling in France was specially attractive to him. It was not only in Paris, where the late Professor Guibourt and other scientific friends always gave him a warm welcome, but in the provincial towns and in the cities of the South, wherever

there was a botanist of standing, he found an open door, and often gained an acquaintance who became a valued correspondent, able to afford local or other special information.

"But his journeys were not confined to France. In the year 1860 he visited the Holy Land with Dr. Hooker, and of late years he frequently spent considerable time at a residence belonging to a brother near Mentone. Here he took great delight in introducing into the beautiful gardens the vast variety of interesting plants which can there be acclimatized.

"During these journeys he frequently exercised his skill in water-color drawing, and the productions of his pencil, like those of his pen always possessed the rare merit of *truthfulness*, whilst a thoroughly artistic effect was preserved. The same exquisite delicacy of touch was apparent in his drawing, writing or printing, or forming of Arabic, Chinese, or other complicated characters.

"In his frequent travels he seemed to have acquired something of the continental practice of using but little meat in proportion to the vegetable food taken. His diet was always spare, and it may be doubted whether his health did not suffer from the abstemiousness of his habit of living, coupled with the constant strain to which he subjected his mental powers. But, if this was so, the motive was never the gratification of ambition or other unworthy object, but the pure love of action, and desire rightly to use the powers bestowed upon him. No feature of his life was, in fact, more striking than his freedom from that anxious self-assertion which too often disfigures the characters of men of science. Whilst remarkably self-reliant, he never sought to thrust himself into notice, but rather kept out of view until drawn out by those who had learned his worth. Though never robust, his health rarely impeded his activity, and slight ailments were resolutely disregarded. There were no indications of approaching illness until he was attacked with a severe *rigor* about the 6th of March; this was followed by serious inflammation of the mouth, and on the subsidence of this local affection symptoms of typhoid fever appeared. On the 18th his condition first caused serious alarm. With little apparent change, his strength gradually failed till the evening of the 24th, when he peacefully passed away.

"Long will the memory of his fine, thoughtful features and spare frame dwell with many who have known and valued him, and long will they continue to miss the decided tones in which his clear judgment and exact knowledge were unhesitatingly expressed. With him every benevolent object connected with science or scientific men has lost a munificent supporter.

"Mr. Hanbury remained to the last a member of the Society of Friends, amongst whom he had been brought up. With characteristic reticence, he scarcely ever alluded to his own religious experience, but his habits of devotion, and an occasional expression, afford evidence of the reality of his Christian faith.

"That a man thus endowed with talents, both natural and acquired, should be taken away ere he completes his fiftieth year, is to us an inscrutable mystery. The light of eternity alone can reveal the full significance of any life."

GEORGE D. WETHERILL, one of the original members of the Philadelphia College of Pharmacy, died in this city April 13th, aged eighty years. He commenced business, on North Front street, in 1816, and, though not active in it for some years, was, at the time of his death, the senior partner of the well-known firm of George D. Wetherill & Co. During his last illness, his wife, Catharine C., was assiduous in her attention toward him; but, as the mortal remains of her husband were carried away to his last resting-place, she breathed her last on the fifty-ninth anniversary of their marriage-day.

WILLIAM BROWN, for many years in business, in Boston, as an apothecary, died there, in his seventieth year, February 10th. The deceased was born, at Little Compton, R. I., and, with three brothers, all apothecaries, settled in Boston, where, by industry and perseverance, he gained for himself a high reputation. He had been a member of the American Pharmaceutical Association since 1858.